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ARTICLES

- Psychological Aspects of Treating Patients
in Corrective Therapy—Paul B. Bell, Sr. 3
Guidance of Patients Through the Acute
Stages of Poliomyelitis and Orientation
for Rehabilitation — Everill W. Fowls,
M.D. and Albert L. Cooper, M.D. 8
Hints on Writing for Therapists—
Sidney Licht, M.D. 15
A Leg Rest for Metal Wheel Chairs—Paul
F. Fleer, B.S. and Edwin F. Simmons, M. Ed. 17

DEPARTMENTS

- FROM OTHER JOURNALS 19-28
EDITORIALS 22
THE PRESIDENT REPORTS 22
CHAPTER ACTIVITIES 23
BOOK REVIEWS 25-28
NEWS AND COMMENTS 26
THE FORUM 29
CLASSIFIED DIRECTORY 30-32

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PSYCHOLOGICAL ASPECTS OF TREATING PATIENTS IN CORRECTIVE THERAPY *

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This paper was presented to the Corrective Therapy staff of VAMTG, Kennedy Hospital in an In-Service Training session this past winter of 1950-51. No new theories are advanced but it is my purpose to inform the reader of the techniques used in therapist-patient interpersonal relationships, here at Kennedy Hospital, with General Medical and Surgical as well as Neuropsychiatric patients. The statements made and conclusions drawn are the result of some six years experience in the field and study of related texts. It is the opinion of the author that the use of applied psychology will remove many of the stumbling blocks which the therapist encounters in his everyday relationship with the General Medical and Surgical patients.

According to the dictionary, psychology is "The science of the human mind in any of its aspects, operations, powers or functions." The Encyclopedia defines it as "The systematic investigation of mental phenomena, especially those associated with consciousness, behavior, and the problem of adjustment to the environment." The latter definition is probably more applicable in our case with perhaps a change incorporated to read, "problems of adjustment to disability brought on by disease, infection or trauma," as compared to "adjustment to the environment." Adjustment to the environment is of secondary importance to the patient because his first consideration, must of necessity, be adjustment to the physical and mental state in which he has been cast so suddenly. After an adjustment has been made on this level then it is a matter of a *readjustment* to the environment, which in all probability will pose many problems. Seen through the eyes of the disabled, environment can assume the role of a strange, unpredictable, or even horrifying force, from which the patient may seek to escape by any of the devious means of which the mind is capable. We must seek to prevent this reaction in patients by attempting to aid in their psychological as well as their physiological readjustment.

In our occupation as Corrective Therapists we are vitally concerned with human relationships, both

with normal people and with the diseased and injured. Life, for all of us, is social; we have social objectives and also social obligations in our everyday life. Successful treatment of patients necessitates ability to deal with people for the purpose of establishing good rapport. If we are adept in the art of getting patients to respond favorably to us and to our suggestions or instructions, we can thereby stimulate them to greater activity which will lead to a more rapid and complete rehabilitation.

One of the basic facts which we should consider in our dealings with disabled or so-called "abnormal" individuals, is that man has certain fundamental wants, motives and needs that initiate and sustain all his activity.¹ In the case of the severely disabled individual this activity must be redirected into the proper therapeutic channels because there is, without exception, a psychological reaction to the effects of the disability. However, even in the face of this psychological reaction, the wants, motives and needs of the individual do not, fundamentally, differ from those of the normal individual. Outstanding among these fundamental wants is the desire for a feeling of personal worth. In comparison with the average, normal individual, the severely disabled person may not feel that he has any personal worth. After all, he has become a burden on his family, he can no longer do the things he is accustomed to doing, and time and time again he has been frustrated and emotionally upset by his repeated failures in attempts to perform daily activities unassisted. In every way possible we must attempt to restore this feeling of personal worth by all we do and say in our daily association with the patient. We must bolster his ego.

Admittedly, there is a long gap between the art of psychological observation and the science of applying this art. It is one thing to know the nature of a disease or injury and another to be able to administer treatment that will enable the patient to overcome the obstacles set up by his disease or trauma. For this reason we should devote a great deal of thought to the special adjustment problems of the physically handicapped. These patients are tortured by the knowledge that, physically, they are different from their fellowmen and that in most cases they can never be the same, no matter to what degree they are rehabilitated. We should consider it a vital part of our job,

* Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

as Corrective Therapists, to assist these patients in their task of psychological as well as physiological readjustment. For too long have we worked "on" the patient rather than "with" the patient. We are prone to think of a patient as a "cardiac," an "amputee" or a "paraplegic," forgetting that we are dealing with an individual who has emotions and is, on occasion, hypersensitive to stimuli from the environment. It should be foremost in our minds, during administration of therapeutic measures, that we are treating the mind and body as an entity.

Our responsibility is a great one when we consider that to misguide a disabled person is tragic, and may produce irremediable consequences. The disabled person is limited in his choice of social and vocational activity, therefore it is imperative that his rehabilitation program is so designed and administered as not to overlook any deterrent factors. Provisions for psychological as well as physiological correction should be made when the program is mapped out. If there is a chance of failure in the proposed program the patient should be forewarned so as to avoid unnecessary frustration and disillusionment. We *do not* desire to discourage the patient by appearing overly pessimistic about his rehabilitation goal but neither, on the other hand, can we afford to set too high an objective which, failure to attain, may discourage further attempts at improvement. Possibly the best procedure is to set a minimum overall objective which is to be worked toward as the end result and then break this down into steps of achievement as treatment is administered. By this procedure we take first things first and by achieving results step by step we stimulate the patient continued efforts through mastery of set skills or exercises on a daily or weekly basis. An example of this would be the use of the self-care tests. There could be no better motivation, for through mastery of these activities, some after repeated attempts, the patient sees improvement and is spurred to greater efforts, realizing that his increased proficiency can only be attributed to his rehabilitation program of therapeutic exercises. McHugh² mentions improvement of patient morale when quadriplegic patients were equipped with and taught the use of special devices which enabled them to feed themselves. Meal time became a much happier situation and a great deal of ward personnel time was saved. Through mastery of this very important self care activity the patient can be made to realize the importance of the program and what it can do for him, with his own contribution of the time and effort necessary to accomplish this goal. This realization may serve as a motivation and create within him the desire to accomplish other self care activities. We must be alert to capitalize on this desire for further accomplishment before the feeling of emotional stimulation subsides.

When and if the above mentioned minimum overall objective is reached, for example, scoring 100% in all self care activities, it can then be determined by the therapist if further advancement, such as improvement in strength, coordination, endurance, etc. could be expected with further treatment. This being the case, the same procedure could be repeated with perhaps more caution observed in the setting of a higher objective which possibly the patient might fail to attain. In any case the patient should be forewarned as to the possibilities of failure in the attempt.

Most of the preceding material is of a rather general nature and could be said to outline more or less precautionary measures to be observed in the prevention of incidents which would have an adverse psychological effect on a patient. Now let us consider some end results which we can hope to attain through the use of psychology in the treatment of patients.

Applied psychology is necessary in the attainment of many specific objectives. The following objectives came to mind immediately:

1. To learn all we can about the patient, things which cannot be found in his chart, such as his background, how the disease or trauma has affected him psychologically, and what his ideas are concerning the future. If this information is divulged we ascertain immediately certain facts which will possibly determine our method of approach to the patient, treatment procedures which will probably meet with success, and can orient the patient at an early date, removing any apprehension or misunderstanding which he might have in regard to the problems facing him in his struggle for rehabilitation.
2. To establish good interpersonal relationships and gain the patient's confidence so that he will give full cooperation in all treatment procedures.
3. To prepare the patient for the difficult treatment procedures ahead and possibly repeated failures to overcome certain problems which face him daily and can be mastered only through diligent practice and hard work.
4. To attain such a close relationship with the patient that we can anticipate any emotional problem which he may encounter in order to prepare him in advance and prevent discouraging incidents from interfering with interest and enthusiasm for treatment.
5. To speed up the process of rehabilitation, not just of the body, but of the "whole" personality.

If all these objectives are reached our treatment problems will be few and our treatment goals attained at a much more rapid rate. To do our job as it should be done we must consider that in almost all cases of severe disability we are treating a "sick" mind as well as a "sick" body and must rehabilitate mentally as well as physically or our job is only half done. Rehabilitation is based on an awareness of the relation-

ship between mental attitudes, conscious and unconscious, and the physiology of the disabled person. The patient returned to the community or vocation without complete psychological adjustment cannot work to capacity and may soon return to the hospital from sheer inability to make the effort required of him in the home or job.

Davis³ states that "the basis of a psychology of rehabilitation rests upon the activity impulse frequently referred to as the activity instinct." He further states that "life is action and the direction of activity outward and redirection of energy into therapeutic channels provides specific methods and techniques." We must first stimulate the desire to get well or to attain a maximum peak of rehabilitation; secondly, activate the drive to return to the home and the job, and finally strive to increase the patient's awareness of why he should strive to regain independence. With the patient, only recently disabled, this does not pose too great a problem, but with the old chronic cases of hemiplegia, Parkinson's, multiple sclerosis, arthritis, and many other degenerative types of disease, it is a difficult task to break the habit of being sick and of accepting the many compensations that go with illness. The indifferent, unenthusiastic, and often introverted attitude of the patient must be overcome to insure any degree of success in the rehabilitation program. The general therapeutic objective is to provide, within the patient, a favorable mental attitude and a sustaining incentive that will have a carry over value. The therapeutic environment should foster such constructive factors and can be made to do so by the practice of the following methods which should thoroughly orient the patient as to the "what", "why" and "how" of treatment procedures.

First, we should fully orient him as to his disability. You may say that is not our job—we are not doctors. No, we certainly are not doctors, nor shall we attempt to diagnose or prescribe treatment. Our job in this instance is to fill in information which may be helpful to the patient, information which the ward doctor has possibly overlooked or not had time to divulge. Possibly the best way to determine what the patient desires to know is to guide him into asking questions, if he possesses the intelligence and insight to ask *intelligent* questions.

Secondly, he should be instructed as to what treatment has been prescribed and what his part will be in this treatment program. We should stress energetic, cooperative, and regular participation, explaining why this is necessary to rapid improvement and rehabilitation.

Third, we must make the patient feel that he is the central part of the rehabilitation process, not simply the end or the beginning; we must make him feel that he himself is doing it for himself, and that he is the

only one who can do it. Once the responsibility is placed upon him, it makes him feel important, and since he is doing it himself, he is not liable to blame you for failure.⁴

Fourth, treatment procedures should be explained. The patient should know why we do a certain exercise and why he is instructed to do exercises in certain, set patterns of movement or sequence.

Fifth, we should prepare the patient for obstacles ahead, far in advance of his actual facing of these obstacles. If the patient is prepared in advance he will suffer far less from frustration over his failures to conquer these obstacles on the first try.

Sixth, we must, very tactfully, and without causing the patient to become discouraged, get across to him some idea of just what state of rehabilitation he can hope to attain. This may not be possible in some of the diseases we treat, but in nearly all cases of trauma we can ascertain very readily what goals should be set and strived for by the patient after we become thoroughly familiar with him and can evaluate his assets and liabilities as pertains to his struggle for rehabilitation. The reason for this measure is, of course, to further orient the patient as to his possibilities so that he may not set his sights too high and be discouraged, frustrated, and disillusioned when he finds he can never hope to reach the goals he had thought possible.

Seventh and lastly, we should orient the patient as to what he should expect in the home situation. The community cannot be expected to adopt a wholly intelligent attitude toward the disabled person, therefore, it is essential that he be helped, emotionally, to accept these conditions.⁵ If we give the proper guidance and encouragement, he will learn not to feel frustrated or angry when, because of his slowness, he misses a train or bus; or will not resent help which sympathetic strangers may offer. He must be able to acquire, not a defense against, but an acceptance of, these situations and attentions, and react as normally as possible.

If all the above requirements are met we will prepare the patients for the emotional demands of life as well as the physical ones and decrease or alleviate the possibilities of failure to adjust to the home and community environment.

In the actual treatment of patients we are faced with two major problems of a psychological nature. First, we must present ideas, instructions, and other verbal material in such a manner as to be readily accepted and assimilated by the patient. Second, we must remove, or at least assuage, opposing ideas inoffensively.¹

There are two methods of presenting ideas or instructions and the first of these is *indirect presentation* which simply amounts to having the patient feel that the idea originated with him. This method spares the

patient from feeling inferior and also spares his feeling of independence.

There are numerous ways to present ideas indirectly, chief among them are the following:

1. *Take desired behavior for granted.* Have the patient feel that you are sure he will follow through on all instructions. By this method you place responsibility on the patient and he will feel gratified by your trust.

2. *Credit patient when he happens to make the desired response.* By this method the patient is assured that he has interpreted instructions correctly and that he has the right idea about what is expected of him.

3. *Credit him with already knowing what you desire done.* This can be accomplished by reference to what he has done during past treatment periods and the assumption that he knows what would logically follow. This can be illustrated by the statements, "as you know from your experience . . . etc.," or "Let me remind you . . .". This is in contrast to the "I'm telling you" attitude which can only bring resentment and disharmony.

4. *Credit him with having suggested what you advocate.* Conversations with patients can be so channeled as to produce ideas that appear to be originated jointly—"I wonder if this isn't what you had in mind . . .", or "I believe you are on the right track but suppose we put it this way . . .".

5. *Present facts without drawing conclusions.* By this method you leave to the patient the drawing of the conclusion. This is an indirect means of presenting an idea, provided of course, the patient arrives at the conclusion you wish him to reach.

6. *Present ideas in question form.* Put your ideas into queries, such as "Wouldn't you say that . . .?" or "Don't you think that . . .?"

7. *Presenting ideas through example.* Accomplished by demonstration by therapist or example of another patient. When acting in imitation the patient will feel that he is acting on his own initiative.

The second method for presenting ideas is the direct approach. This method can be used inoffensively if we observe tact in its application, such as the following examples:

1. *Give the impression of modesty.* This can be done by crediting the patient with merit equal to one's own, by attributing success to opportunity or chance, or minimizing one's own merit. The patient's ego is considerably boosted by this method.

2. *Respect opinions and rights of patients.* By this method we avoid offending and acknowledge patient's right to choose his course. This might be illustrated by such statements as, "I wish you would consider . . .", or "I think that . . ., but it's all up to you."

3. *Appearing as a spokesman.* If used wisely this is an excellent means of presenting ideas and such a

procedure avoids giving the impression of being egotistical or dictatorial. Illustrative statements would be, "We are required to do . . .", or "With our present situation . . .". This means of presentation can be abused however and so-called "passing the buck" can arouse indignation.

4. *Expressing an idea without directing it toward the patient in particular.* By this method we avoid giving the impression of singling him out as being in need of information or guidance. Illustrative examples might be first, presenting the idea as being a good policy by such statements as "It is a good idea to . . .", or "It pays to . . .", and second, stating that *WE* should do a certain thing by use of the following examples, "Let us . . .", or "If we work hard . . .".

Now, as to the second problem of *removing*, or at least *assuaging*, *opposing ideas*, *inoffensively*. Overcoming objectionable ideas is a delicate procedure, a more delicate procedure than simply gaining acceptance of ideas; for it implies not merely that the other person is misinformed but that he is wrong. Such an implication may wound his pride and he may tend to defend his position as a means of vindicating himself, even in the face of your opposition. Methods used for overcoming objectionable ideas must not only serve our purpose *effectively* but also be *civil*. The following methods should serve both these purposes:

1. *Making a concession before rejecting the idea expressed.* We remove the sting of our rejection by recognizing that there is some truth in the idea expressed. Illustrative statements, "It can be done that way, but . . .", "It might work out, but I am skeptical . . .", "That sounds logical, but . . .". Some loosely call this the "Yes-But" technique.

2. *Revealing a deliberate attitude regarding an idea before rejecting it.* Politeness frequently requires that we give hospitality to opinions we cannot share. The deliberate attitude can be revealed by pondering the idea before raising an objection, or by simply recognizing the idea when expressed and by rejecting it later. Illustrative remarks: "That might be worth thinking about." "We might talk that over later."

3. *Suggestion that the other person give more thought to what he has said.* By this means we express a doubt as to the desirability of the idea, and do not offend by doing so. We should be no more positive than is necessary to get the person to see the undesirability of the idea. Illustrative statements: "I wouldn't act hastily in this matter." "Have you considered this from all angles?"

4. *Stating that there are others who agree before you disagree.* This protects him from feeling that you consider him alone to be wrong. Illustrative statements: "That's the general opinion, however . . .". "There are two schools of thought but we advocate . . .".

5. *Exonerating the individual from blame for the view he has expressed.* We acknowledge that his incorrect position is no fault of his own and cast no reflection on his judgment or motives. Illustrates statements: "If you had known all the facts. . .". "Let me explain more fully". "I must have given you the wrong impression."

6. *Refraining from being over-positive in opposition to another's views.* If we do this we make another's errors inexcusable by making it certain, and assume a definite superiority in information and judgment. Illustrative statements: "I am inclined to disagree with you." "You may be correct, but . . .".

7. *Paying tribute to the individual before objecting to his view.* Illustrative statements: "I know that you want to do the proper thing." It isn't like you to say that." "You are usually right, but . . .".

8. Others might be: Being courteous in rejecting ideas. Disregarding the idea and diverting attention from it. Expressing surprise at his view; refusing to take the person seriously.

Religious practice of these methods will go far toward development of harmonious relationships and make our task an easier one to perform.

Effective rehabilitation can never remain a static process so there is always room for change and improvement. Rehabilitation is an evolution representing progressive changes in the attitude of society and transformation of the individual, insofar as he is able to muster his resources and with our help, readjust upon a level showing improvement in his physical, mental and social status.

We must practice a relatively new psychology of rehabilitation, an aggressive psychology away from the old custodial idea of protective and prolonged hospitalization. We must prepare the patient to assume some responsibility. He must be led to understand that the world does not owe him a living but offers him understanding and guidance. He must realize that the state of rehabilitation attained in the hospital, and the requirements of the community life or job are separated by quite a gap. It is our job to bridge this gap by use of any means at our command or at least prepare the patient for acceptance of it.

If we can say that this has been done for each patient declared "maximum benefit" then, and only then, can we say our job has been done *faithfully* and *well*.

SUMMARY:

1. In this paper I have tried to show the use of some of the fundamental principles of applied psychology, during administration of treatment, to produce harmonious interpersonal relationship between therapist and patient, motivate enthusiastic endeavor and prepare the patient for the environment of home and community.

2. These principles are:

- a. Those that apply to adjustment to the disability.
 - b. Those that apply to readjustment to the environment.
 - c. Those that apply to actual administration of treatment.
 - d. Those that contribute to the establishment of realistic goals of treatment.
3. We accomplish them by:
- a. Quizzing the patient to determine his problems, both physical and mental.
 - b. Establishing working relationship; therapist-patient team.
 - c. Preparing patient for treatment procedures by complete orientation.
 - d. Establishing relationship, one that anticipates problems that might cause emotional incidents, detrimental to interest and enthusiasm for treatment.

4. By the use of applied psychology we can hope to speed up the rehabilitation process by:

- a. Breaking the habit of being sick.
- b. Stimulating the desire to get well.
- c. Activating the drive to return to home and job.
- d. Increasing the patient's awareness of why he should strive for independence.
- e. Creating a mental attitude and incentive with a carry-over value.
- f. Pointing out the "what, why and how" of treatment procedures to insure correct and industrious application.

5. As I have tried to point out, there are two major problems which face us in the application of psychological measures. The first is the presentation of instructions in such a manner that they will be readily accepted and understood. The second is the process of removing opposing ideas inoffensively. The observance of tact and common courtesy are essential. The "Yes-But" technique works well and is commonly used.

6. The patient must be led to understand that the world does not owe him a living but understanding guidance, and that his improvement will be determined by his own efforts.

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GUIDANCE OF PATIENTS THROUGH THE ACUTE STAGES OF POLIOMYELITIS AND ORIENTATION FOR REHABILITATION * * *

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It is extremely important that we first have a comprehensive understanding of the etiology, symptomatology and pathology of poliomyelitis before we attempt to cope with the complex problems involved in the rehabilitation of poliomyelitic patients. These patients have received a terrific insult to the normal functioning of their physiology, which remains with them in various degrees throughout their entire lifetime.

Poliomyelitis is an acute viral infection which attacks primarily the central nervous system and frequently results in flaccid paralysis of muscles or a group of muscles of the voluntary and, in some cases, of the involuntary systems. In the not too distant past we taught that poliomyelitis was an epidemic summer disease of childhood, but now we know that it is often endemic and affects many susceptible adults.

The poliomyelitis virus is estimated to be about ten to fifteen millimicrons in size and thus is one of the smallest, as well as sturdiest, of the filtrable organisms. It is known to be an extremely stable and resistive virus as it remains unharmed by ice box temperatures for months when human feces are suspended in aqueous solutions and, likewise, it is not destroyed by the usual concentrations of chlorine which ordinarily kill the usual enteric flora. Spinal cord tissue is often preserved in fifty per cent glycerin and the virus remains unharmed in this media for years. On the other hand, ultraviolet radiations, temperatures above fifty-five degrees centigrade and strong oxidation agents spell rapid death to the causative organisms of poliomyelitis.

In spite of many years of research, the true mode and method of transmission of the virus from one patient to another is not definitely known. Undoubtedly, as shown in autopsy studies of fatal cases, the upper respirator and gastrointestinal areas are vitally important as to the portal of entry into the body. After the organisms have once gained admission they are

apparently spread by the sympathetic and, probably, by the circulatory systems to the spinal cord and brain areas. Droplet contact, food and water contamination, feces, sewage, and flies as well as human carriers have all been suspected as the factors responsible for dissemination of the disease throughout a community or to various members within the same family, as multiple cases are now rather common within the same family. We have in the past few years frequently observed that robust children and adults are the chosen victims by the virus. Often, poliomyelitis patients have open throat or mouth lesions, or even other cuts about the skin. Tonsillectomy and tooth extractions may also be predisposing factors, especially towards bulbar involvement.

A few years ago we felt that the virus was entirely a neurotropic agent, but our more recent experiences have lead us to believe that it is more generalized as to systemic involvement. We realize that the most characteristic lesions are those of central nervous system destruction, especially of the anterior horn cells and associated neuron divisions as manifested by neurophagia, perivascular and round cell infiltration to complete destruction of the horn cells, cerebellar and vestibular nuclei as well as other gray matter changes of the spinal cord and motor cortex. In addition we find distant lymph node hyperplasia and hemorrhagic meningeal changes. Through the element of time we have come to realize that many cells may become physiologically or mechanically blocked by swollen neighboring cells and may become even permanently damaged or lost as to future functioning. Likewise, we have recently come to realize that the polio virus immediately enters the nucleus of the nerve cell and lives upon the nucleoproteins, where it undoubtedly multiplies. If the nerve cell nucleus has abundance of nucleoproteins it is able to survive in spite of the extra demands placed upon it, but if the proteins are at a low level then the cell dies in favor of the virus. In this connection we know that fatigue, over work or exercising and long hours with inadequate rest all act as methods of reducing the amount of nucleoprotein storage and thus may act as very damaging and precipitating factors in the development of not only severe, but widespread and even fatal paralysis.

Clinically, we observed many forms of poliomyelitis

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which may be classified for ease of understanding under the following groups: (1) the abortive group which undoubtedly represents about three-fourths of all cases, (2) the non-paralytic, and (3) the paralytic group.

The abortive cases are usually so mild that the patient or the patient's family never seek a physician's opinion. They have a mild headache, nausea with or without vomiting accompanied by sudden onset of fever, dry or sore throat and indefinite muscle aching of back or extremities. They are often called "flu," "virus infections," or even "common cold with general malaise." If examined physically there are no conclusive findings of any particular pathology or disease; and if a spinal fluid study happens to be made the results are usually normal. Because of the mild nature of the infection the patient is usually completely well or recovered within one to two days and has returned to his usual daily activities.

The non-paralytic cases have usually a diphasic onset consisting of first general malaise followed by a period of well-being systemically but may have residual muscle pain, tenderness, or even weakness for several days. As in abortive cases, these are often not seen by the physician and even if studied by him the diagnosis is not conclusive unless an epidemic is in the community. It is from this group that later in life we see a patient with a scoliosis due to an imbalance from a gluteus muscle weakness or a patient with an unexplainable limp in one extremity caused by extremity shortness, or even paraspinal muscle inequality.

The paralytic case usually runs a diphasic course consisting of a similar onset of non-specific general malaise and lasting a period of from two to five days. This is followed by a period of two to several days of apparent full recovery or sense of well-being and the patient usually returns to his daily routine or is up and about. This period is quickly followed by a sudden onset of recurrent fever, headache, restlessness, stiff painful neck, and pain and spasm of the trunk and extremity muscles or either generalized or localized groups. This muscular spasm and pain is persistent (particularly) in the hamstring, deltoids, biceps, anterior tibials and abdominals) and rapidly develops into muscle weakness, paralysis, and loss of the reflexes. We have observed that about one-third of our cases in the paralytic group do not have this diphasic course but start with the prodromal symptoms and rapidly develop pain suggestive of sciatica, chest or acute abdominal pathology, or neuritis of the upper extremities. Within a period of hours they usually begin to show muscle spasm and weakness and scattered progressive paralysis, according to the site or area of involvement in the spinal cord or medulla.

We may further classify these cases as spinal, spino-bulbar, bulbo-spinal, bulbar, paraplegic, mono or

hemiplegic, facial and encephalitic depending upon the site or sites of the central nervous system involvement. If the level of involvement is purely spinal then we are dealing with a patient having either trunk, abdominal, intercostal, or extremity paralysis or weakness. In any given patient all or any combination of these levels may be affected. If the level is higher and the cranial nerves are involved then we have a patient with pharyngeal, laryngeal, facial, or other cranial innervated muscle palsies. These cases thus show early difficulty in swallowing food or water and develop a nasal quality to their speech as well as nasal regurgitation.

The spinal fluid studies in the paralytic, as well as the nonparalytic cases, generally show an increase of spinal fluid lymphocyte count of thirty to two hundred, or even one thousand cells, with an associated protein increase of 10 to 100 mg/100 cc. The blood count may remain normal but most cases show a leukocytosis of 10,000 to 14,000 with a lymphocytic increase above 35 cells and averaging about 50 to 55.

The diagnosis of poliomyelitis during an epidemic is usually easy, in most cases, and equally as easy if one is polio-minded. However, we have seen many a typical case which was first diagnosed as encephalitis, infectious myelitis, meningitis, pneumonia, cord tumor or spinal disc pathology, acute sciatica, infectious polyneuritis, acute osteomyelitis and in children rheumatic fever, and even mump meingo-encephalitis.

Before considering the treatment phases we should briefly reacquaint ourselves with the prognosis and prevention of poliomyelitis. Observation of many cases has taught us a few basic rules as to prognosis, but no definite guide-stick or ruler can be used. The longer the abnormal temperature remains (especially at a high level) the graver the outcome as to life, severity of involvement, extensiveness and height of the level of involvement. Extreme restlessness, especially when coupled with marked apprehension, is an index that bulbar involvement is imminent. Thus, a very poor prognosis is afforded because up to 50 per cent of these cases end fatally as compared with 1 per cent to 10 per cent of non-bulbar cases. Long periods of over-fatigue, and especially fatigue after the prodromal phases, tend to rapidly lower or deplete the nucleoprotein levels. This is a very serious predisposing factor towards a poor prognosis as to amount of involvement, severity of involvement, and danger towards threatening of patients' lives. Prophylaxis against poliomyelitis and its spread is that of good sound hygiene and sanitation on the part of both the community and the individuals within the community.

The treatment of poliomyelitis in the acute or life-saving period is naturally non-specific as we have no vaccines, serums, or drugs of any proven benefit except for treatment or prevention of complications. We

thus must employ all possible protective and supportive measures at our command to relieve the pain, spasm, and reduce the deformities to a minimum. All cases whether paralytic or abortive, should have the benefit of early bed rest and light but adequate diet, high in proteins and carbohydrates but avoiding additional vitamin therapy—especially Vitamin B-1 during the acute phase as the poliomyelitis virus grows abundantly in the presence of Vitamin B Complex. The patient should be given the benefit of mild analgesics and sedatives, watched closely to prevent dehydration and chloride depletion, and hospitalized for isolation protection if at all possible.

During the first two or three weeks of the acute myelitis process, the patient must avoid strain and all unnecessary procedures which might produce the least amount of fatigue. He should be properly positioned in bed to maintain correct body and extremity posture at all times and only passively exercised to bring about full motion range, thus preventing contracture deformities and capsular fibrosis. The effects of gravity must be overcome if such effects favor deformity and thus foot boards, mattress boards, proper positioning of hands, wrists, neck, and elbow by the use of sand bags and towel rolls are of vital importance. The discouragement of the use of thicker articles such as pillows is of equal importance as the "battle of the pillows" in regard to causing deformity of the neck, hips, and knees is always facing us in any bed-confined illness. This phase of treatment requires the closest of cooperation between the physician, the nurse, and the physical therapist with watchful and constant vigilance by all concerned. The painful spastic muscles are relieved by heat, which we have found to be more effective if moist heat using one hundred per cent wool packs is applied for thirty to forty-five minutes multiple times daily. If persistent pain remains, especially in the lower extremities, it is frequently the result of sympathetic nervous system imbalance which produces a vaso-constriction of the arterial bed. In these cases peripheral vascular studies should be instituted and if oscillometric readings are low the use of a vasodilator drug (priscoline) is indicated for the relief of pain. On the other hand, antispasmodic drugs such as prostigmin, curare, and myanesin are of no value in our experience. In cases where the paralysis is extensive of the extremities, an associated state of venous stagnation due to the lack of mechanical aid of the muscle in return venous flow is present. This condition may require frequent elevation of the extremity and a sedative but selective massage to overcome the edema and associated pain.

A rather common set of complications of the acute myelitis is that of urinary and rectal dysfunctions in the form of urinary retention and constipation. These conditions should be combated early by catheteriza-

tion, saline enemas and indicated medication. This medication may be protective as in the antibiotics and aiding or stimulating as in the laxative and urecoline drugs.

The most serious complication is that brought about by respiratory failure in case of paralysis of intercostal, diaphragmatic, and associated accessory muscles of breathing. These are the cases that require a mechanical means for breathing such as the respirator in order to save their lives. Again, this mechanical form of breathing is not without complications or dangers, as prolonged cases must be protected against or even treated for pneumonia and massive pulmonary collapse. In addition, all respirator cases are subject to sudden death while in the respirator or even after they have been out of the respirator for several days or even weeks.

At this time in our discussion we wish to bring out some additional information about determining the need of a respirator, as we find frequently that patients are placed in a respirator without meeting the requirements for its usage. First, we must carefully screen the patient to make sure he has the spinal type of respiratory paralysis and not cynosis, dyspnea or shallow irregular breathing on the basis of muscle spasm or obstruction to his pharyngeal and laryngeal passages. The muscle spasm of the intercostal and diaphragm can effectively and quickly be reduced or removed by properly applied hot, moist packs. When this same patient is placed in a respirator the extra pressure placed on his chest not only produces more pain and spasm, but he fights it constantly. If the case be pure bulbar and not bulbar spinal, a respirator likewise is not indicated as the treatment of his case is the release of cynosis by the use of humidified oxygen plus obtaining freedom of obstruction in the upper and lower air passages. His pharyngeal and laryngeal paralysis result not only in a mechanical blocking, but also he has a pooling of thick, tenacious, and copious secretions in air passages as well as his pulmonary tree. He, like his purely spinal brother, may experience great difficulty in coughing and, without postural drainage, tracheal and bronchial suction may drown in his own secretions. In addition, he may require the use of a tracheotomy as well as atropine to aid in drying up the secretions. The use of a respirator in these bulbar cases may result in disaster as they have an irregular discharge rate of medullary impulses arising from the respiratory center and a respirator is never able to properly synchronize with the rate. Likewise, any negative pressure is very harmful in these cases as it tends to retain or force the secretions deeper in the air passages. In all cases, prolonged use of the respirator should be avoided and early graduation to a rocking bed not only aids in weaning the patient but permits earlier physical therapy and reduces shoulder deformity, especially

abduction restriction.

A large number of bulbar cases die early due to paralysis of the respiratory center, while others require careful watching on their nutritional needs and the use of intravenous feedings, gavage, and proctoclysis are a necessity. These cases also must be checked carefully for dehydration due to vomiting and, at the same time, be protected against regurgitation of foods into the air passages.

After having saved the patient's life during the acute phase, we must turn our attention towards the sub-acute or convalescent phase of his disease. During this phase the treatment must be aimed towards restoration of function, prevention of deformities, and preparation towards final rehabilitation. It is during this period in his treatment that Physical Medicine Rehabilitation clinics are vitally responsible for the patient's care. Early, it is of extreme importance that the patient and his family be orientated concerning his disease and future so as to lessen the natural apprehension and anxiety which is always present. The patient must be impressed with his need for full cooperation and that he, himself, in every way possible, must exert himself to aid in his rehabilitation and at the same time follow all instructions closely to prevent harm to his muscles and joints. His muscles must now be completely graded as to strength and voluntary action. All zero muscles must be marked for further electro-diagnostic studies and they, as well as their weakened assistants, antagonistic or stabilizers, must be protected against the pull of gravity unless this action is in their favor to prevent shortening, stretching or deformity. Intelligent re-education of the weakened muscles can be started immediately providing spasm has been relieved and the patient's general condition has improved sufficiently. In the past none or very little re-education of muscles was performed as the patient was placed in splints, plaster casts or traction during this phase. Not until the advent of Sister Kenny starting the medical profession to thinking, did re-education gain the extreme importance that it has today in the treatment of poliomyelitis. At this time we wish to introduce a word of caution in that re-education started too early may be harmful unless a complete and careful evaluation of the muscles indicates that all spasm has disappeared. Frequently we have been able to demonstrate that spasm still exists electromyographically, although it does not seem so by objective physical diagnosis such as palpation or visualization. Subjectively, the patient is not aware of the existence of spasm. In our clinic we now carefully test all zero or doubtful muscles by electromyograph to determine their exact status of nerve muscle integrity before attempting re-education. If a muscle is fibrillating, (that is, showing constant steady electrical impulses

of monophasic or diphasic wave form of 10 to 100 effective microvolts with a duration of 1 to 2 milliseconds and a frequency of 2 to 30 with a high-pitched, clicking tick tock sound and which is not altered by voluntary efforts) we know that it is denervated and will remain paralyzed. However, we find very few muscles in this pathological state as most of them either have a mixed pattern or show a pure polyphasic pattern, or a base-line disturbance, or simple motor units and are generally the re-education possibilities. We do want to point out that base-line disturbances, fasciculations during rest or complex wave patterns may be significant of early degeneration or early regeneration and multiple testing and clinical evaluation, are necessary to determine the amount and the extent or the time to be spent in re-education. The time frequently required is two to two and one-half years for satisfactory return of muscle function.

Muscle re-education is an art on the part of the therapist, but at the same time she must be well-schooled on kinesiology so that she can alert the patient into understanding both normal and abnormal muscle physiology, as well as muscle origin, insertion, actions as primary functions, secondary or assisting functions, antagonistic functions, and stabilization functions. The patient is then made aware of his muscles as to location, involvement, and action which is pointed out to him as well as accomplished by passive exercise. Then, by a process of mutual cooperation between the therapist and the patient, he is taught to think while passive motion is accomplished. During this act tendon pressure or stimulation is elicited by the therapist. If the patient is experiencing difficulty in becoming aware of his muscle functions and actions, the use of carefully applied faradic current along with re-education is helpful. A word of caution is necessary as we must not stimulate near-by muscles and if the refractory period of the muscle is prolonged beyond one sigma chronaxie then the use of galvanic current is necessary and this is doubly more apt to flow into near-by or normal muscles and cause them to be stronger or alert the patient to the wrong muscle.

In applying the principles of muscle re-education we must first make sure that the gravity factor is eliminated or that the extremity or part is placed so that gravity aids and doesn't stretch or resist the weakened or paralyzed muscles. Once the muscle can overcome gravity then re-education is applied along with resistance. This resistance at first may be very slight as encountered on a powder board. By the time the patient has reached this period in his re-education he is entering into the chronic or final rehabilitation phase of his disease. He has learned his lessons well and has learned that an unpardonable sin is that of muscle substitution or muscle "cheating." He has not had the liberties of the wheelchair or other semi-ambulatory

activities and, above all, he has been refrained from using the Hubbard tank or therapeutic pool as these only add to the already mounting desire to gain muscle motion regardless of the muscle or muscles employed and, thus, permit substitution, poor postural habits, poor walking habits, and even joint subluxations.

Now that the patient has progressed into the final stage of his subacute classification and has mastered the essential basis of muscle re-education, he is ready to advance into the early phases of his chronic or rehabilitation treatments. He now must be considered first, for semi-ambulation and later ambulation; second, for vocational rehabilitation; third, for corrective therapy; fourth, for occupational therapy including manual arts therapy; and lastly, for reconstruction surgery. We shall now attempt to outline the needs and methods employed to satisfactorily carry the patient through this final step in his treatment to his restoration as a useful member in society.

Having supported the patient against gravity during the prior treatment phase by supportive bed measure which, incidentally, should include support of the bed covers especially to prevent impeding knee action as well as protective measures when sitting up in bed to prevent sagging of the back and over-stretching of the glutei, we now graduate the patient to prone position exercises in preparation for his graduation into sitting up or supportive standing. The patient is now completely re-evaluated by the physiatrist in consultation with the physical therapist to determine which muscles must be supported by splintage against gravity, as well as to determine the percentage of substance loss in normal or non-affected muscles so as to protect these muscles from over-capacity working and causing undue comfort as well as damage. The muscles which have been partially or completely paralyzed are now carefully considered as to their future possibilities and re-evaluated not only by voluntary grading but electromyographically. Those muscles which have a voluntary grading of below Grade III are marked for protective slinging or support. At our hospital we prefer to splint the upper extremities with plexiglass splints the lower extremities with light-weight braces, the abdominal lower trunk with reinforced canvas supports, and the upper trunk with light-weight Taylor braces. All of these braces must meet the following criteria to be acceptable:

1. They must be light-weight so as not to overburden the weak muscles or even the normal muscles.
2. They must be easily adjusted so that they can be altered from time to time so as to prevent skin pressure or circulatory interference, and yet fit snugly.
3. They must permit small joint movements and freedom of gentle muscle contractions.

4. They must control any abnormal movement and at the same time prevent unparalyzed opponents from shortening.

Splints or slings for the upper extremity are required most often for shoulder weakness and particularly deltoid muscle involvement. This apparatus must first meet the above rules and should be arranged so that the elbow lies as near shoulder height as possible with full support to the arm, forearm, and hand which prevents not only wrist drop but also gives general muscles protection against over-stretching. In many cases, we also supply the patient with an opponens cuff as this aids him greatly in performing finer movements such as writing and working in occupational therapy (silk stenciling, knitting, knot tying, and etc.). Early, we encourage such activities to aid in synergic contractions, but we also protect the patient against over-fatigue in establishing his rhythmic pattern of muscle function. In the patient who has marked involvement we frequently have to use counter-balance weights and springs to overcome gravity so as to permit him to exercise certain muscles while in supports or slings. Most of these early activities are carried out in bed, but later may be given to the patient while in his wheelchair.

At this time we wish to say a few timely remarks about both the use and abuse of the wheelchair. The too early employment of this method of ambulation may produce very harmful results due to the pull of gravity in the seated position, plus the weight of the body above this position. Both glutei and quadriceps, which are the most important anti-gravity muscles, may be over-strained or stretched and in addition, if not properly supported, the spinal column will sag and produce permanent damage. Also, it may produce long-standing stimuli which will be morally and physically harmful as all paraplegias and poliomyelitis patients have a great desire to resume walking as soon as they are convalescing but the ease with which the modern wheelchair permits the patients to wheel themselves about, soon dampens this desire to relearn walking. The wheelchair, however, is an extremely useful, supplemental apparatus to the patient who has to go outside or has to go fairly long distances when he is first learning to walk with caliper braces or when his involvement doesn't permit him to walk with such apparatus.

We have now introduced the subject of walking with braces and this requires a few words of explanation because we do not give a patient any type of brace and expect him to use it. He first must be prepared for the use of the brace and this requires not only careful muscle re-education but also early employment of over-load or resistive exercises in the corrective therapy clinic. At our clinic we believe that as soon as a muscle has been restored to good voluntary contraction it is ready for resistive exercises. This

muscle may not overcome gravity but with the employment of counter-balance weights and pullies gravity can be eliminated and over-load exercises, which must always be carefully graded, can be started. These exercises are given not only to the affected extremities but also to the normal extremities so that the patient may be ready to walk with support of adjustable crutches, mechanical walkers, or parallel bars without producing undue strain on his triceps, serratii, deltoids, pectorals, scapular, trunk or lower extremity muscles especially the quadriceps, anterior tibials, and glutei.

Actually, we prefer to use a progressive step-by-step method of preparing the patient for crutch walking. He must first be prepared muscularly by resistive exercises, next he walks between the parallel bars, then in the mechanical walker, and finally with his crutches. We could talk for hours about crutches but a wise word or two is always a worthwhile reminder for all of us to prevent disaster to the patient. We prefer to use an adjustable crutch as to avoid axillary pressure and resultant crutch paralysis or wrist drop. We prefer to use lift-weight metal with large suction cups on the walking end and instruct the patient to start out with a four point gait and then develop a two point gait or whatever gait we find meets his needs most. He must avoid at all times, except for emergency needs of fast motion, the swing-through gait. Lastly, a patient is never completely instructed in crutch gaits until the danger of wet floors, loose gravel, walking up and down stairs, and alighting from a bus or a curb are carefully taught to him.

We now must turn our attention to the patient and our discussion on lower extremity walking calipers or braces. We prefer to first splint the patient with full-leg, aluminum, half-shell splints with an adjustable but fixed knee hinge so that his leg is held extended. These splints are held firmly in place by ace bandages and the patient started on his parallel bar activities. Once he has mastered the feeling of such walking activities we then fit him with a proper brace according to his needs. This brace must offer him good and firm support and protect his weakened muscles. It must, in addition, prevent abnormal positioning of the extremity or even the trunk proper. Too often a patient is supplied braces only because of paralysis or weakness of the lower extremities. Frequently he can extend and flex his knee and support his foot and ankle in good position, but his buttock muscles need support of a properly fitted brace with a Thomas ring or in some cases an ischial seat. By supplying these cases with proper braces we can prevent scoliosis due to the extremely weak or unbalanced glutei muscles and we can likewise reduce substitution, such as the supplementing of abductors with the sartorius which causes the hardest deformi-

ty to over-come—that of outward rotation of the knee, hip, and foot. Before leaving the subject of braces, we must say a few words about the need of strengthening the abdominal muscles, as well as other muscles, to avoid the necessity of abdominal supports. Should these methods fail to bring about sufficient muscle power then we must support the abdominal structures to prevent not only sagging but sudden loss of balance due to sudden forward flexion of the trunk on the pelvis while walking. Again we wish to state that all weakened muscles are first exercised with support of gravity. With a patient lying on his back and performing deep breathing exercises, it is possible to strengthen his abdominal muscles during the deep expiration by encouragement of abdominal contraction. Likewise, he can hollow his lumbar region and thus contract his lumbar muscles to their shortest length and, synergically, the glutei are favored by gravity during their contractions. At the same time, the patient is encouraged to push the straight knee on the bed for quadriceps strengthening with the hamstring muscles acting synergically; while in the prone position the glutei can be made to raise the knee from the bed with cooperation on the part of the quadriceps or the dorsi-flexion of the foot with gravity aiding the tibialis anterior. If the foot is turned from side to side the peronei can be alternately exercised with the tibialis posterior.

The patient, in the meantime, has been under the careful guidance and under screening by the Medical Rehabilitation Psychologist and the Social Service Personnel. The patient's family, economical and social needs are all carefully considered and cared for. At intervals, complicated circumstances arise and these often produce family strains and increase the patient's apprehension and anxiety reactions. A consultation with our psychiatrist at this time is a most helpful adjunct to our teamwork.

The patient's past schooling has been reviewed with him by both the psychologist and the educational therapist. His past employment record, if an adult, has likewise been carefully considered; and the future advisability of returning to the same position or, as the case may be, the selection of a new vocation which will meet with his physical and mental status are discussed with him. The patient's abilities are explored through intelligent testing by the psychologist as to aptitudes, dexterity, manipulation ability, intelligence and deterioration factors, and his ability to adapt both socially and economically. As the results of these tests are compiled and interpreted a program is outlined for him in educational therapy which explores his ability to adapt to various fields of learning. At the same time, a metric therapy program is carried out in occupational therapy and manual arts therapy to aid not only in evaluation of his disability and work tolerance but that he may be more

intelligently advised regarding his future vocational needs or studies.

In a few cases, by this time, we are aware that certain corrective or reconstructive procedures may be required to aid the patient in ambulation or future vocation. Our orthopedic members of the rehabilitation team are now called in for advice as to surgical management or the correction of deformities such as flexion contracture of the hip; dislocation of the hip; knee, ankle, foot, hand, or shoulder deformities; leg shortening or lengthening operations and sympathectomy for skin ulcers, chilblains or peripheral vascular pain.

The advent of modern re-education of muscles plus the improved techniques of electro-diagnosis through the electromyograph has not only reduced the number of cases requiring reconstructive surgery, but has taught us to delay its usage until at least thirty months have elapsed. In our experience we have seen patients who have had joint fusions or muscle transplants which, on the basis of electromyographic studies and muscle grading, shouldn't have had the transplants due to insufficient muscle strength of the transplanted muscle to carry on two jobs. We, also, have seen function return to a muscle which was believed to be paralyzed at the time of the reconstructive surgery. Another word of caution should be given to fully consider the patient's job requirements so as to meet them completely and not, for example, fuse an elbow in the so-called favorable angle instead of in a straight line position if he is a laborer or a farmer.

In closing we would like to mention the most common disabilities which are amenable to reconstruction, providing they do not have other associated disabilities or involvement which would make such surgery a useless procedure.

Deformities of the knee are multiple, of which flexion deformity is the most common due to paralysis of the anterior thigh muscles while knock-knee and genu recurvature are less commonly noted. These deformities may require tendon lengthening of the hamstring muscles, capsuloplasty, osteotomy, or arthrodesis. The transplanting of the sartorius into the patella may be used for quadriceps paralysis. Deformities of the ankle consist of talipes equinus as the most common due to extensor paralysis or shortening of the leg from childhood involvement. A judicious tendocalcaneus tenotomy aids these cases and prevents undue gastrocnemius strain which is vitally required for locking the knee and at the same time attempt to bring about a balance with the anterior crural muscles. If the anterior muscles are too involved then an arthrodesis must be considered to prevent flail foot.

Spinal column deformities have already been mentioned but a word about the use of spinal fusion surgery should be given in cases where light braces and

corsets do not answer the requirements for ambulation. Before such surgery is undertaken we must employ all methods of correction such as exercises and plaster casts to bring about stabilization of the two spinal curves and then fuse only those which are failures under conservative treatment.

Shoulder joint deformities (which usually result from deltoid muscle paralysis, but not infrequently, also have various degrees of involvement of the pectoral, trapezius or spinatus, and rhomboids) should be considered as cases for arthrodesis rather than tendon transplants. Various operations for transplanting the trapezius to the humerus, with or without fascia lata strips or the biceps in front of the acromion and the triceps posteriorly or the transplanting of the pectoralis major into the biceps tendon, have been used but don't bring about good motion range or the stability required for good shoulder function. Arthrodesis should not be used if the patient is not above twelve years of age as it frequently causes scoliosis to develop and with motion so limited fractures are not infrequent. Serratus anterior paralysis may require scapular fixation to the seventh and eighth ribs by fascia lata fixation to prevent winged scapula and lack of general shoulder strength secondary to the winging.

Elbow joint paralysis are always serious due to development of a flail joint so arthrodesis with flexor paralysis is a must. Incomplete paralysis cases may require common flexor transplanting to a higher level. Extensor paralysis with wrist drop may require fusion in a slightly cocked-up position, especially if flexors are weak; otherwise the transplanting of the pronator teres to the extensor carpi radialis longus and brevis is indicated and at the same time the palmaris longus into the extensor pollicis longus and the flexor carpi radialis into the extensor pollicis brevis and the adductor pollicis longus and the flexor carpi ulnaris into the extensor communis, extensor indicis and extensor minimi digiti. In the reverse paralysis the transplanting of the extensors into the flexors usually meets with very poor results or failure and should be avoided.

In hip deformities we have dampened enthusiasm for gluteus maximus transplants as we have observed that most cases on bed rest with careful guarding against early weight bearing, as well as early employment of muscle re-education and teaching the patient to sit or lie without adduction or flexion but rather with abduction, results in not only good hip function but reduces dislocations to a rarity. In some cases the transplanting of the tensor fasciae latae with its attachment into the posterior superior iliac spine will reduce the first phase of the so-called gluteus medius limp and thus aid in walking the patient more correctly.

Finally, we wish to mention that there are numerous operations for the correction of foot deformities through stabilization of the various joints and for prevention of foot drop, inversion and eversion.

CONCLUSIONS: The treatment and rehabilitation of patients with poliomyelitis presents an out-

standing challenge to all personnel who are concerned with their recovery and care. We must first save the patients' lives and then not only correct their deformities and muscle weaknesses, but at the same time prepare them for their future economical, physical and social adjustment into the society in which they live.

HINTS ON WRITING FOR THERAPISTS

SIDNEY LICHT, M.D.
Editor, Occupational Therapy and Rehabilitation
Cambridge, Massachusetts

Therapists in the fields of physical medicine should write about their experiences to increase the store of technical knowledge. In so doing they may gain greater acceptance of their work, respect for their profession, but most important, help others in helping patients. The most common form of written contribution is the scientific paper, a composition of less than chapter length which offers some knowledge discovered or verified by the writer.

There are three types of paper: 1. the *premeditated*, resulting from the accumulation of evidence based on planned experiments, 2. the *retrospective*, based on available uncontrolled experiences, and 3. the *armchair*, based on the reports or work of others. A young growing specialty needs many premeditated and no armchair papers, but a review of the literature will show that in the journals of the physical medicine auxiliaries the reverse has been true.

The technical paper has come to follow a rather set pattern and the novice will find that adherence to it will help in writing and gaining publication. The first sentence or paragraph should be introductory. In it try to answer the following questions: 1. why did I write it and for whom? 2. why this attempt is different from similar recent papers. If the opening is stereotyped and reminiscent of other dull papers your reader will probably refuse to continue. No matter what you write always have in mind an audience which is at least as clever as you are and even harder to deceive.

The second section should be concerned with the history of the subject. It is unlikely for any person during his lifetime to come up with an idea never previously placed on paper. Look through the recent literature to find out if your paper is really necessary, if someone has not said it better. Give credit to those who did by referring to their work by name. Place

such references in chronological or logical order, label them with numbers in parentheses and see to it that these are accurately listed at the end of the paper or in footnotes depending upon the style of the journal in which you wish to see your work published.

The third portion of your article should state the method used in obtaining your results. In this section identify the disease, by definition if seemly. Describe the method in sufficient detail to dispel the implication that it requires a skill unique to yourself. Give instructions for constructing equipment or tell how you made the observations. In part four give the results. If possible list these in simple tables, charts or graphs, but keep them to a minimum because they are expensive to reproduce. Give negative results the prominence they deserve but state all negative findings in a positive manner.

The fifth part is a discussion of results. Place ideas in sequence and develop them point by point. Everything preceding this section has been a sort of news report; in this portion imagination must be combined with logic. Each is difficult to achieve and the best way to learn more about them is through reading many good papers. The sixth or final part is the summary. It reviews the highest lights of the paper and lists the conclusions.

Each sentence must be grammatically correct. In conversation many people omit a verb or predicate occasionally and may even try to carry this over into their writing. The simplest way to avoid poor grammar, the *non sequitur* and other writing faults is by giving your paper to someone else to read for content as well as grammar. Obtain the services of a person who writes well or reads critically. You may be able to do this on an exchange basis or you may find someone who enjoys such exercise.

REFERENCES

The word *bibliography* originally meant the list of books on which a composition was based. Lately it has come to have a much broader meaning but not nearly as broad as the term *references* which is preferred. Reference lists should not be too long lest the reader suspect affectation on the part of the author. Even more important, the author should not list any reference not personally consulted. Any discriminating editor or reader will soon detect such a fraudulent attempt because it will either be reflected in the article itself or in an inaccuracy of listing. It is good for every article to have a few references to indicate that the ideas of others were useful. Do not try to gain respectability for yourself by quoting a famous work even if you have read it unless its contents are directly applicable to your article.

CONSTRUCTION

The *title* is very important. It should not be too long; not over ten words is a good rule for beginners. The title should be attractive, truly indicative of the contents to follow; never misleading to the prospective reader.

The opening sentence should be different from any you have ever read. Try throughout to sustain the same key of writing. This will require uniformity of tense, person and intellectual level.

The closing sentences should epitomize the entire paper and not state anything not covered in the paper although it is well to state the facts with more finality.

After you have written your final draft see how many words you can delete without changing the meaning of the paper. In this way you will eliminate *double-talk* (meaningless phrases), *redundancy*, and *half-talk* (phrases in which the reader recognizes half-baked ideas usually based on lack of information). Use the dictionary to explain words to your reader and yourself.

Differentiate between fact and opinion. If you have an opinion based on honest conviction do not be afraid to publish it; the best papers are those which provoke discussion, which force the other side to raise its voice so that all may judge for themselves the soundness of each side. Do not distort facts for this will make your position indefensible and will bring discredit on you and your group.

In writing any article, make a point and get to the point as soon as possible. Writing is not easy, but it is as easy to learn as any discipline. It requires practice, critical review and evaluation, and rewriting. It requires reading of many good articles and the reading of some good books on writing of which the following will suffice for the beginner:

Gill, Robert S. *Author Publisher Printer Complex*. Williams and Wilkins, Baltimore. 1949.

Fishbein, Morris, *Medical Writing*. P. Blakiston Co., Philadelphia. 1938.

Flesch, Rudolf, *Art of Readable Writing*. Harper Bros. New York. 1951.

MANUSCRIPTS

Manuscripts should not contain more than 4,000 words. Articles containing fewer words are desired. Two typewritten pages, double spaced, contain approximately 500 words. This is the equivalent of one page in the Journal. Reprints should be ordered when manuscript is submitted.

PHOTOGRAPHS

Photographs for cuts should be 8x10" high contrast black and white, glossy prints. Printed captions and related information referring to the photographs, should be typed and attached to the bottom of the photograph.

REFERENCES

References to the text of the manuscript should be in the form of footnotes. These footnotes should be numbered consecutively throughout the manuscript. Additional references for collateral reading, should be assembled alphabetically by author at the end of the article. References and bibliographical material should be submitted in the following form:

Morton, Dudley J., *The Human Foot*, Columbia University Press, 1935.

Kraus, Hans, M.D., *Therapeutic Exercises in Rehabilitation*, Vol 3, pp 7-10, June 1949, Journal of Physical and Mental Rehabilitation.

EARLY ISSUES NEEDED

The Association will pay 50c for early issues. Many Libraries are requesting copies of the 1947-48-49 issues.

DO NOT RETURN ISSUES OF 1950-51

Journals must be in good condition, or they will be returned.

A LEG REST FOR METAL WHEEL CHAIRS *

By PAUL F. FLEER, B.S.
Chief, Corrective Therapy
EDWIN F. SIMMONS, M.Ed.
Corrective Therapist
Veterans Administration Hospital, Dublin, Georgia

A need has long been felt, particularly by the Orthopedic Service, for an inexpensive leg rest for metal wheel chairs to provide constant elevation for the lower extremities of wheel chair patients for whom elevation has been prescribed. Such a leg rest can be of use not only to the Orthopedic Service but also to the Medical Service, the Surgical Service, and the Physical Medicine Rehabilitation Service. To meet this need the leg rest described below has been devised.

The use of the leg rest will have a positive effect on patient morale in that, in many cases, it will enable the patient to get out of bed and into a wheel chair sooner. Also, the early independent mobility of the patient in the metal wheel chair will help raise his morale since it will decrease the length of time that he must be pushed by an attendant.

The leg rest can be easily constructed of inexpensive materials at any installation which is equipped with basic engineering tools.

Finally, it can be attached to and detached from any metal wheel chair quickly and easily and is reversible so that it can be used on either side. No alteration of the wheel chair is necessary.

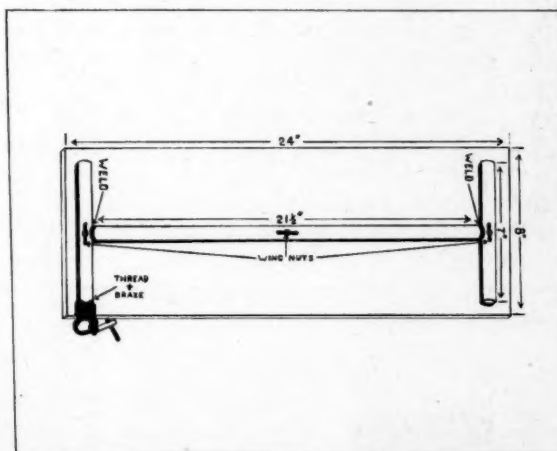


The leg rest is secured to the wheel chair by attaching the clamp around the front upright on either side as designed.

* Reviewed by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

Material

1. One piece of 1/2" plywood 8" x 24".
2. One length of 3/4" galvanized iron pipe 35-1/2" long.
3. One clamp of the type used to attach the traction arms on to the Chick-Smart Overhead Frame. These can be purchased from the Gilbert Hyde Chick Co., 821 Seventy-Fifth Avenue, Oakland 21, California for approximately \$4.00 each.
4. Three 1/4" bolts 2" long with wing nuts.
5. One piece 1/4" rubber 3" x 3".



This working diagram illustrates the dimensions, construction and assembly of the leg rest.

Construction and Assembly

Board

Three 1/4" holes are drilled on the center line of the board, one 1" from each end of the board and one in the middle.

Pipe

One end of the pipe is threaded to fit the clamp. The pipe is then cut 7" from the threaded end and 7" from the other end. These short pieces are welded to the ends of the long piece to form a T at each end. The welds are at the center of the short pieces. A 1/4" hole is drilled in the center of the long pipe and in each of the short pieces opposite the center of the weld. These holes are in a straight line to conform with the holes in the board.

Clamp

A section 1" long and 5/8" deep is cut out of the top and bottom of the clamp from the hinge end. Then a piece is cut out of opposite sides of the rubber 2-1/2" from one end and 5/8" deep. This liner is attached by small rivets to the inside of the clamp to conform with the shape of the clamp.

The clamp is screwed on to the threaded end of the pipe and brazed in such a position that the hinge will be toward the chair. Then the board is fastened to the

pipe by means of the bolts and wing nuts.

The leg rest can be easily reversed and used on the opposite side of the chair by turning it over and putting the board on the other side of the pipe.

Summary

A leg rest for metal wheel chairs has been devised. This leg rest helps make possible early patient mobility and has a positive effect on patient morale. It is easily constructed of inexpensive materials, and requires no alteration of the wheel chair. Finally, it is easily reversible for use on either side.

MEMBERSHIP DRIVE

To all Members:

All we ask of you is to secure at least ONE member for the year.

This may be an Active member at \$6.00 who meets the necessary requirements or an Associate member at \$4.00 per year. The Associate member may be one of many people, namely; Doctors, Nurses, friends, immediate family, allied rehabilitation workers, or any other category of person who is at all interested in your welfare and the welfare of the disabled. All of us with a concerted effort can secure a member. Our aim is to double our membership for the coming year.

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"From Other Journals"

RHYTHM TRAINING

By EVELYN LOEWENDAHL
University of California at Los Angeles

Nature of the Proprioceptive Centers

THE achievement of standing erect comes from an intricate process of nerve ending stimulation which originates within the body itself and principally in the skeletal muscles, tendons, and joints. Hence, the sense of position arises from a deep sensibility aroused by stimulation of the skeletal muscles and adjoining structures. The impulses in these parts are transmitted to the higher centers in the central nervous system which in turn are relayed back to the muscles, tendons, and joints which then move in coordinate effective patterns. The sum total of these intricate nerve impulses results in the development of a kinesthetic sense. From this physiological knowledge we receive an indication as to the means of developing the kinesthetic sense or proprioceptive centers, and therefore the sense of erectness. It is a program of stimulation of the muscles and related structures. In other words, through activity we can achieve a sense of position. The common use of the plumb line in developing good standing position may still be employed for superficial checking of body alignment. It may be employed by the individual himself or the teacher to check the shoulder, hip, and ankle points which should be dissected by a plumb line from the side position. The mirror also checks for us the evenness of the shoulder and hip levels. However, since the position of standing is not a static process but dependent upon active stimulation of the kinesthetic centers, a program of active training of those centers will do more to achieve for the individual a sense of erectness than superficial posture checks. This is particularly true in the early stages of bone, joint, and skeletal muscle development as in the elementary level.

The Initial Examination

Through the guidance and direction of Dr. H. E. Billig, Medical Director of the Billig Clinic, Los Angeles, we selected those students who were exhibiting a poor sense of erectness—those who were leaning to one side with one shoulder dropped lower, and those who used their bodies in an uncoordinated non-smooth pattern of movement. These children were

told to remove their clothes from the waist up and to close their eyes, whereupon their bodies were bent forward. In this position, with their eyes closed, they were moved from right to left and left to right. Then they were requested to come to a standing position but told to keep their eyes closed until they thought they were standing completely erect. Before they opened their eyes the examiner observed the position of the spine. Its deviation from a center line and an uneven hip and shoulder level were noted on an examination card. In several instances the student would level his shoulders after he observed his deviation in a mirror. His visual sense would inform him that he stood off of center, but his deep proprioceptive sense had not, since his spine was deviated lateralward when his eyes were closed.

In a second test, we bent the student over in the Adams position—to determine the amount of derotation of the rib cage.¹ In all of the cases examined (16) the curvature was functional, namely, the spine straightened out in the Adams position. We were dealing with an age group of six to ten years of age and did not find severe degrees of derotation.

Training Program

The rhythmic training program itself consisted of three periods a week of 20 minutes each in a series of exercises done to a definite rhythm. They were performed slowly and smoothly, with good coordination. Directions were changed on the beat and flowed from one direction into the next smoothly. The beginning exercises dealt first with large groups of muscles. The movements gained in complexity as they progressed.

A. Standing in good position:

1. Arms out to side shoulder level. Turn torso to the right, to the front, to the left, to the front.
2. Reach down to the toes with the hands. Come up to standing position; lean to right; come up to standing position; lean to left; come up to standing position.
3. Leg swing (use back of chair for balance). Right leg swing forward, backward, forward, place; left leg swing forward, backward, forward, place.
4. Leg swing. With hands on hips.
5. Walk to rhythm of music watching posture.
6. Skip to rhythm of music, watching posture.²

In addition to supervised periods of twenty minutes each at school, a home program was given to be practiced daily for twenty minutes. A conference of the mothers of the pupils was called at which time a complete explanation was made of the reason for the program, the method of examination and the observations made. The purpose and method of correction was discussed in great detail. A metronome for rhythm

Reprinted from the *Journal of Health and Physical Education*, 19:7 (September, 1948), pp. 474, 506-507, J534

¹ By the Adams position is meant full forward flexion or the forward bend position.

² The author will provide upon request titles of musical selections used.

was suggested in the absence of a phonograph at home.

The continued progression of exercises was as follows:

B. Lie in good position:

1. Raise leg on beat of music; lower leg on beat of music.

C. Sit in good position:

1. Clap hands in single or double time.

2. Tap one foot to the music single or double time.

3. Combine clapping and foot tapping.

4. Sit on floor in good cross-legged position, tapping twice on floor and clapping twice, single or double time.

5. Arms bent at elbows and raised shoulder high, hands on chest palms down towards the floor. On beat open arms sideward, then close to beginning position.

6. Arms bent at elbows close to side, place first on side of shoulder. With the music bring the arms straight up overhead.

D. Stand in good position:

1. Jump, feet apart, arms raised shoulder high.

2. Arms straight and crossed in front, fling arms upward with the music.

3. Jump right foot to the side, jump feet together; jump left foot to the side, jump feet together; jump right foot, jump feet together; jump left foot forward, jump feet together.

E. Progress in good position:

1. Walk to music.

2. Run to music.

3. Skip to music.

The program of exercising at home was necessary because it was not possible to see the pupil daily and over weekends during a school training program. The need of daily dosage for training of the proprioceptive centers was prescribed by the Medical Director.

Results of the Program

After a period of three months the same procedure described under the initial examination was performed again. The straightness of the spine and the degree of correction were noted on the chart. In a group of sixteen students, thirteen showed signs of improvement; that is, they came to a more erect position. The lateral deviation of the spine was corrected or improved. Three of the sixteen pupils were not finally examined because of transfers. An illustration of an interesting result was a girl, age eight, with a marked deviation (right dorsal, left lumbar curvature) who made the best correction by carrying her spine dead center and leveling her shoulders with it, after three months of daily rhythmic movements as outlined in the program. In this instance, there had been daily practice at home supplementing school

practice with a strong interest and supervision on the part of the mother.

Conclusions

By using a program of rhythmic training carefully graded and daily executed, a pupil at the elementary grade school level who is exhibiting a lateral curvature of the spine or incoordinate patterns of movement can develop and/or improve his deep sensibility of the kinesthetic sense. The responsive quality of the kinesthetic centers is directly related to an individual's sense of erectness; and therefore deviation from the erect center and incoordinate patterns can be corrected through a program of rhythmic training. This was demonstrated at the University Elementary Training school.

Journal of the American Medical Association

October 14, 1950 — Vol. 144, No. 7

Living with Limitations. 16mm., black and white, sound, showing time 19 minutes. Produced in 1950 by the Department of Medicine and Surgery, Veterans Administration. Procurable on loan from Chief, Medical Illustration Division, Research and Education Service, Department of Medicine and Surgery, Veterans Administration, Washington, D. C.

This excellent motion picture was prepared to show that the services of physical medicine and rehabilitation not only are extremely helpful for the more dramatically handicapped, but serve a useful purpose as part of the armamentarium which every physician with patients suffering from certain common disabilities can call on to assist him in achieving their recovery and rehabilitation. The film succeeds especially well in demonstrating its point. The complete medical, surgical, physical-medical and rehabilitation programs for three typical cases are demonstrated. The management of a patient with a dislocation of an internal semilunar cartilage from the time of admission until the time of his return to work is demonstrated graphically, and the physical therapeutic and rehabilitation procedures which follow the surgical management are clearly demonstrated.

The second patient who is shown has rheumatoid arthritis of both hips and requires extensive medical, physical-medical and rehabilitative management before he is finally restored, after five months, to limited activity. After the early stages of routine medical management with bed rest and analgesics, the early phases of the physical therapeutic regimen are shown and the place of corrective therapy, occupational therapy, vocational counseling and educational therapy are clearly demonstrated. The deft employment of all these phases of physical medicine and rehabilitation by a well qualified physiatrist finally results in the restoration of this patient to productive citizenship in a new activity in which he can be

completely self supporting and independent despite certain residual limitations resulting from the arthritis.

The final case is that of a patient who has had a recent coronary occlusion and who progresses from complete bed rest to various stages of recovery including mild activity, bibliotherapy, mild occupational therapy, graduated walking and corrective therapy, a period of limited employment and finally restoration to an activity in which he can live a productive life compatible with his limited physical capabilities.

During the filming of the various stages in the management of these three patients there are glimpses of the well equipped sections of a department of physical medicine and rehabilitation and views of other patients, such as are frequently seen in general medical practice, who can be benefited by the physical, therapeutic and rehabilitative procedures which are available in a modern governmental hospital. It is apparent that the government hospitals are demonstrating to civilian hospitals the importance of having well organized and complete services to provide for rehabilitation of the whole man, to prepare each patient physically, mentally, socially and vocationally for the fullest possible life compatible with his abilities and disabilities. It is made clear that it is the responsibility of the physician to guide the total program of the patient from the day he is injured or becomes ill until the time he is fully restored to useful citizenship.

This production can be highly recommended to all physicians who are interested in the newer concepts of physical medicine and rehabilitation as related to general medical and surgical care.

The photography and narration are excellent, and the theme of the film is clearly demonstrated.

Reprinted from the Journal of the A.M.A., Vol. 144, No. 7, October 14, 1950, with permission granted by the Editor.

ARCHER S. GORDON, M.D., FRANK RAYMON, B.S., MAX SADOVE, M.D. and A. C. IVY, M.D., "Manual Artificial Respiration," *Journal of the American Medical Association*, 144: 1447-52, December 23, 1950.

The effectiveness of the methods of artificial respiration tested in "Artificial Respiration" were studied on normal subjects trained to suspend respiration and on the same subjects made apneic by curare-anesthesia agents. Certain correlations were noted between body build and the amount of pulmonary exchange elicited by the various methods, but in general the results corroborated the previous findings made on warm corpses. The hip lift-prone pressure method is generally most efficacious, but is also most fatiguing. The mechanical devices now available are generally superior to manual methods, but the first few minutes are crucial in resuscitation and manual methods must be used until an approved mechanical device is available. — PJR

ARCHER S. GORDON, M.D., DAVID C. FAINER, M.D. and A. C. IVY, M.D., "Artificial Respiration," *Journal of the American Medical Association*, 144:1455-64, December 23, 1950.

The amount of pulmonary ventilation obtained by the Silvester, Schafer, Nielsen, Schafer-Neilsen-Drinker, Emerson, Schafer-Emerson-Ivy, Hip Roll Prone Pressure and Eve methods of artificial respiration were studied by use of 109 warm corpses within one hour after death and before the onset of rigor mortis, and on nine normal subjects with voluntarily suspended respiration after hyperventilation. The manual methods in which the subject lies prone or supine and which utilize both a "push and pull" principle provide approximately twice the minute volume of ventilation obtained by those which utilize only a "push" or "pull" principle. The ventilating efficiency of the Schafer method can be doubled by lifting the hips 4 inches 12 times each minute, alternating with the push on the lower part of the chest. Lifting the hips is fatiguing and, after the crucial first several minutes, may be employed after every second or third push on the lower part of the chest. — PJR

THOMAS A. GONZALES, M.D., "Fatal Injuries in Competitive Sports," *Journal of the American Medical Association*, 146: 1506-15, August 18, 1951.

The Office of the Chief Medical Examiner made a survey of fatal injuries received in sports in New York City from 1918 to 1950, inclusive. Boxing has produced fewer deaths (21), in proportion to the number of participants, than occurred in baseball (43) or football (22). It seems that the moral and physical benefits derived from boxing far outweigh the dangers inherent in it or any of the other competitive sports. P.J.R.

H. H. NEUMANN, M.D., "Medical Progress and Dental Decay," *New York State Journal of Medicine*, 51:1749-52, July 15, 1951.

Dental studies have shown severe vitamin and nutritional deficiencies do not cause caries. Oral hygiene does not affect the caries rate. There is no correlation between climate and quantity of sunshine and dental condition. Constitutional, hereditary and racial factors appear to be entirely secondary. The benefits of addition of fluorine to the water are debatable and further research is required. The formation of acid in the mouth through the fermentation of refined carbohydrates is the most widely held theory of dental caries. Evidence on this is mixed and further work will have to be done. Every organ reacts to disuse by regressive changes. This may apply to teeth. Increased resistance to caries may be achieved by vigorous mastication of such materials as tough black bread and sugar cane. Emphasis on vigor and not duration of chewing is important. P.J.R.



EDITORIALS



THE SCIENTIFIC PAPER

Excellent suggestions on writing the scientific paper, are to be found in Dr. Sidney Licht's paper—"Hints on Writing the Scientific Paper," appearing in this issue. These stimulating hints, make one wonder why more premeditated writing dealing with the complex problems of rehabilitation, have not appeared more frequently in our professional journals.

As the writer so clearly indicates, therapists should report what they are doing. It is by changing philosophies and the techniques supporting them, that we develop any discipline and gain respect for it. What type of exercise have you used most successfully, in treating the hemiplegic patient? What types have failed? Have you developed a combination back and head rest for the folding type wheel chair? What have you developed? Is a half hour treatment adequate? If not, what is?

Manuscripts will be gratefully received at any time prior of the fifteenth of the month preceding publication.

ATTENDANCE AT PROFESSIONAL MEETINGS

The Professional Meeting is an essential factor in the growth of the therapist. The conferee returns with new ideas and purposes, or finds that his program and techniques have not become routine and static.

The Second Annual Conference of the Southeastern Chapter, has successfully brought together therapists from all sections of the Physical Medicine Service of the Veterans Administration in a one-day meeting, showing the importance of team work in dealing with some of the perplexing problems that total rehabilitation of the disabled involves. Rehabilitation is a community responsibility. The magnitude of the job is being recognized in all sections of the country. In Chicago, Illinois, in New York City and in Los Angeles, California, similar meetings are being organized.

Each of the twenty chapters of the association are located in areas where meetings of a professional nature occur frequently. Our membership should not miss any of these opportunities to attend and contribute to the discussions and deliberations.

It will be the policy of this Journal, to keep a column—"Meetings of Interest" up to date.

The President Reports



PURPOSE OF CHAPTERS—There are 20 Chapters throughout the United States organized on an area or regional basis. The purpose of these chapters, is to carry out the objectives of the National organization and to formulate modifications of, or additions to, the program. Specifically the local chapter enables the individual member to exchange ideas related to both scientific and administrative problems on a local level. Local chapters afford opportunity for members to present and discuss scientific papers. They furnish a clearing house for discussion of community rehabilitation problems and assist in their solution. The local chapter can invite speakers from other professional groups in the community to present papers or problems. Local chapters are in the front line for recruitment of new members. Active local chapters become "the strong right arm" of any association.

THE FIFTH ANNUAL MEMBERSHIP DRIVE is gaining momentum. It is essential that the entire membership make every effort, to enlist the aid of all individuals interested in the rehabilitation of the handicapped, by becoming members of our Association. Our goal at this time is to double the membership. If every member gets ONE member, our goal will be reached.

OUR SIXTH ANNUAL CONVENTION—I would like to take this opportunity to express my deepest appreciation for a most efficient and outstanding member of our organization. George Reichle, of Milwaukee, Wisconsin, our convention chairman, has solved many of the perplexing problems frequently encountered in arranging a national event. However, it will be necessary for every member to carry out assignments willingly and efficiently to produce another successful meeting. A tentative program is in the formulative stage and we can look forward with confidence to another professional and entertaining convention in Milwaukee Wisconsin on July 8-12-1952.

DEFEATS ARE ONLY INSTALLMENTS TO VICTORY.
—JACOB A. RIIS.



Chapter Activities

NEW ENGLAND CHAPTER

STARTS PUBLICATION OF BULLETIN

All members are requested to forward items of interest for inclusion in the bulletin, to Frank S. Deyoe, Cushing V. A. Hospital, Framingham, Mass.

The bulletin gives a summary of minutes of the organizational meeting held in May 1951. An informative talk was given by Dr. Edward Daniels, Staff Psychiatrist at the hospital, on the topic, "A Suggested Corrective Therapy Program for Mental Patients" Thirty one members were present. a Constitution and By-Laws have been prepared for discussion and adoption at the next meeting. This Chapter has received interesting information regarding the Association of Remedial Gymnasts in England. "Membership is limited to those who have completed a course under the auspices of the Ministry of Labor and National Services and the Ling Physical Education Association." Our counterparts in England seem to be right out in front of us.

The officers of the Chapter are: Frank S. Deyoe, President, Alfred B. Ellison, Vice President, Secretary-Treasurer, Harvey Williams. The Program of the September meeting including talks by Thomas L. DeLorme, M.D. on "Heavy Resistance Exercise" and Walter Barton, M.D. on "Adaptive Sports and Play as a Therapeutic Agent, in the Treatment of Mental Patients."

NEW YORK CHAPTER

EASTERN AREA

The Eastern area, New York Chapter of the Association held their opening fall conference at the Hotel New Yorker, New York City on October 5, 1951. The meeting open to the general public was highly successful and attended by over 150 people. The program was broadcast over a local N.Y. radio station, WMCA. The key speaker of the evening was Dr. John Kershaw, Chief of the Rehabilitation Unit, United Nations who hails from Great Britain and this was his first public address in this country. The chairman of the meeting was Dr. A. S. Abramson, Chief, Physical Medicine Rehabilitation, VA, Bronx, N. Y., who also conducted the discussion period. The closing speaker was Leo Berner, President of the Association for Physical and Mental Rehabilitation who outlined the objectives of the Association. A business

meeting, open to members only, followed the general meeting.

WESTERN AREA

The Western area chapter met recently in upstate N. Y. and conducted a lively meeting, under the able guidance of their chairman, Louis Guidnard. The discussion centered around problems of educational requirements of Corrective Therapists, and other general problems.

MIDDLE ATLANTIC CHAPTER

Meeting at Valley Forge Army Hospital, Phenixville, Pa., recently the members of the Middle Atlantic chapter were guests of the Physical Reconditioning Corps, under the command of Major Howard Vire. Following the meeting of the Executive Board the General Assembly met at 1:00 P.M. Harold Robinson, Chief, Corrective Therapy, VA, Roanoke, Va., was reelected President of the chapter. The Commanding Officer of the Army Hospital addressed the gathering and was followed by an interesting talk given by Lt. Col. Dear, Chief, Physical Medicine Rehabilitation. Major Vire, member of the Executive Board of the chapter, presented an outline of the functions of the Physical Reconditioning Corps.

MID-WEST CHAPTER

The second meeting of the Mid-West chapter of the Association was held at the VA Hospital, Hines, Illinois on Saturday, Sept. 22, 1951. The program consisted of the following: the morning session devoted to a business meeting for the members. The afternoon session was given over to a clinical program with Dr. L. B. Newman, Chief, Physical Medicine Rehabilitation, Hines, Ill., acting as Moderator. Dr. Felix Jansey, Orthopedist, presented a talk on "Exercises in the Treatment of Orthopedic Cases." Another speaker on the program was Russell Williams, Chief, Blind Rehabilitation Section, Physical Medicine Rehabilitation, VA, Hines, Ill., who spoke on "Role of Corrective Therapy in Rehabilitation of the Blind." Mr. F. L. Surdyk, President of the chapter, reported that Dr. Arthur Daniels of Ohio State University accepted the offer to serve on the chapter's advisory board.

SOUTHEASTERN CHAPTER

The Second meeting of the Southeastern Chapter was held Saturday, October 13, 1951, in Atlanta, Georgia. Approximately fifty people attended, including guests, OT's, PT's, MAT's, and speakers. Roy L. Hilliard, the new president, reports papers presented by three physiatrists, Dr. W. E. Steiner, Chief, Phys. Med. Rehab., VA, Chamblee, Georgia.; Dr. Charles

H. Regan, Chief, Phys. Med. Rehab., VA, Tuscaloosa, Ala., and Dr. Florence I. Mohoney, Chief, Phys. Med. Rehab., VA, Memphis, Tenn. A panel discussion on orthopedic problems was held by Dr. E. B. Dunlap, Consultant, Orthopedic Surgery, VA, Chamblee, Georgia. Preceding the afternoon business session, a demonstration of treatment for the hemiplegic patient was presented by 'Pop' Sanders and Paul Bell, Kennedy VA Hospital, Memphis, Tennessee. The afternoon business session was devoted to report and adoption of a constitution, election of officers, and a report on the National Education Committee's activities by Tom Zweirlein, Assistant Chief of Corrective Therapy, Washington, D. C. The slate of officers elected is as follows: President, Roy Hilliard, V.A. Chamblee, Georgia; First Vice President, Paul B. Bell, Kennedy VA, Memphis Tennessee; Second Vice President, Freeman E. Huskey, VA, Columbia, South Carolina; Secretary-treasurer, Raymond B. Heaslet, VA, Tuscaloosa, Ala.

IOWA STATE CHAPTER

Leonard Ewald reports the formation of a chapter in the state of Iowa. Plans are under way for a conference to launch the new chapter with cooperation being received from University of Iowa and Drake University. Dr. Charles Heliman who teaches Correctives at Drake University, is taking an active part in getting things started.

LOUISIANA STATE CHAPTER

Jack Watson, President of the Louisiana State chapter, reports a Newsletter of local chapter doings now in preparation. Jack is the Chief, Corrective Therapy, VA, Alexandria, La.

SOUTHERN CALIFORNIA CHAPTER

Murray Levitta, President of the Southern California Chapter, reports a successful chapter meeting in Los Angeles. The key speaker of the evening was Dr. Harvey Billig, who presented a report of the meet- of the Congress of Physical Medicine, which met recently at Denver, Colorado.

Editors Note. Harold M. Robinson has been appointed Chairman of Chapter Activities. Send all reports of Chapter Activities for publication in this column to 3411 Birch Lawn Avenue, Roanoke, Virginia.

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Book Reviews



THE PRINCIPLES AND PRACTICES OF REHABILITATION

by HENRY H. KESSLER, M.D., Ph.D., F.A.C.S.

Director, Kessler Institute for Rehabilitation; Attending Orthopedic Surgeon, Hospital and Home for the Crippled Children, Newark City Hospital, Newark Beth Israel Hospital and Hasbrouck Heights Hospital; President, National Council on Rehabilitation.

IN COLLABORATION WITH 20 OTHER AUTHORS

Cloth. \$9.00 Pp 448 With Illustrations. Lea and Febiger, Washington Square, Phila. 6, Pa.

This book was written by twenty-one physicians, each a specialist in his field, who collectively discuss every phase of rehabilitation. The editor and nearly all the contributors are outstanding authorities. Each chapter contains factual knowledge of value to all concerned with the problem of rehabilitation.

The idea that medical care ends with definitive treatment is replaced with the knowledge that the responsibility ends only when the patient is restored to the most satisfactory social and vocational circumstances possible.

The book is well arranged and follows a unique and informative method of presentation. Twelve chapters are devoted to the Principles of Rehabilitation and nine chapters to the Practices of rehabilitation.

To make it one of the most interesting and helpful books available on the subject, there are chapters on Physical Restoration, Physical Conditioning, Physical Rehabilitation of Neurological Disabilities in the Veterans' Administration, Disability Evaluation, and Rehabilitation of the Amputee, Cardiac, and Blind—to mention but a few.

The author, who is an international authority on Rehabilitation, should be commended for this excellent contribution to the field. This book should be read by all concerned with the care and treatment of patients regardless of specialty, when it is realized that all medical personnel are involved at some time in one or more of the many phases of rehabilitation.

A.D.T.

CORRECTIVE THERAPY FOR THE HANDICAPPED CHILD

Eleanor B. Stone and John W. Deyton, Prentice-Hall Inc., New York, 1951. Illustrated, 315 pages.

Here is an excellent source of reference for the Corrective Physical education instructor who must

adapt a school physical education program to meet the physically disabled child's individual capacities. As outlined by the authors, the primary purpose of the book is to treat the subjects of physical and health education, including guidance, for children with any type or degree of disability. An excellent program of exercises and games is presented to the instructor who receives his supervision from the school physician.

In any chapter, one may see how the authors provide specific suggestions on *what* to do and *how* to do it for each disability. Typical of the practical material, is the listing of suggested activities for the various disabilities found in Chapter IV. There are many good photographs which add clarity to the subject matter of the book.

The thought provoking foreward is presented by Dr. Jay B. Nash, Chairman of the Department of Health and Physical Education, New York University, a nationally recognized authority on recreation and physical education for children. All of the material in the book has been used successfully in helping physically handicapped children.

Primarily a "how-to-do-it" book, it is a combination of the authors' original work in the field and an improved synthesis of existing materials.

GIVE THEM A CHANCE TO TALK

Handbook on Speech Correction for Cerebral Palsy by Berneice R. Rutherford. Pp. 129 with illustrations. Burgess Publishing Company, Minneapolis 15, Minn.

The importance of speech as a means of communications cannot be over emphasized. Speech is essential to almost all interpersonal relationships, and interference with its function presents a very serious rehabilitation problem.

This book presents the methods of treatment and correction of speech disorders for the cerebral palsied. The techniques discussed in the book are the outcome of extensive studies with patients. The routine and various methods of treatment employed by the author are presented in a most informative manner.

The attempt to open the avenues of expression for the children with cerebral palsy are the primary objectives of the book.

Some of the subjects discussed are Problems in Speech Therapy, Developmental Exercises for Speech Training, Speech Differences in Cerebral Palsy, and Background of Speech Therapy.

This book is concise and well written. Physicians, nurses, therapists, and teachers should derive informative techniques from this manual. A.D.T.

(Cont. on Page 28)

THE REASON THERE ARE SO FEW GOOD TALKERS IN PUBLIC IS THAT THERE ARE SO FEW THINKERS IN PRIVATE.—ANONYMOUS.

News and Comments



FROM WASHINGTON

The recent visit of the rehabilitation team from Yugoslavia, included Mrs. Urska Brecelj, remedial gymnast. She is a graduate Sports Instructor and Gymnast in the German Gymnastic Federation. She is presently employed as Instructor in Therapeutic Physical Culture at the State Institute of Physical Culture. She has specialized in work with traumatized patients, including spinal cord and polio complications.

The Film, "Activity For Schizophrenia" is continuing to gain honors, being recently honored in an International Competition in Italy. It has been televised under the title, "Road To Reason," in just about every city in the United States having television.

Bob Einer, who did such a marvelous job in depicting the schizophrenic patient in "Activity For Schizophrenia" was seen in a leading roll on a National television network drama. This picture, "Second Chance" was produced by the Fireside Theatre. It was shown in Washington, September 4th.

The new movie, "Bright Victory," depicts the rehabilitation of a blinded veteran. Many of the "shots" were made at the Army Hospital in Valley Forge, where the Mid South Chapter held its September meeting.

Central Office, Division of Physical Medicine and Rehabilitation, has just completed a bibliography. Many articles appearing in the Journal of our Association are included. Copies will be sent upon request.

CONVENTION BRIEFS

During the convention, Marquette University will confer an Honorary degree on Mr. Bernard M. Baruch for his outstanding contributions to the field of Physical Medicine and Rehabilitation. This ceremony will be part of the convention program.

From Dr. Joel T. Boone, Chief Medical Director, Veterans Administration, Washington 25, D. C., "I have noted the dates of the convention on my calendar and will certainly plan to be with you, if only for the meetings on July 10 and the banquet that night. I fully realize the value of such a meeting in its relationship to the veteran in whom we all have the same interest."

APPROPRIATION BILL FOR NEUROLOGICAL INSTITUTE PASSES BOTH HOUSES

An appropriation for the National Institute for Neurological Diseases and Blindness was passed recently by the House of Representatives and the Senate. The bill is not yet law however, since the bill that cleared the Senate differs from the one passed by the House. As a result, conferees of both have been appointed to iron out the differences and it will probably become law.

This act, if passed, will make funds available for research in many neurological diseases such as multiple sclerosis, amyotrophic lateral sclerosis, Parkinson's etc., for which the exact cause is unknown and there is no specific treatment.

REHABILITATION MANUAL FOR MULTIPLE SCLEROSIS PUBLISHED

The National Multiple Sclerosis Society has begun distribution of a manual entitled *MULTIPLE* distribution of a manual entitled *Multiple Sclerosis: Application of Rehabilitation Techniques*, by Dr. Edward E. Gordon, of the department of Physical Medicine and Rehabilitation at New York University—Bellevue Medical Center, New York City.

The manual is specifically designed for the rehabilitation of the patient at home. "The care of a patient with multiple sclerosis demands of the physician a positive attitude fostering a spirit of hopeful management," states Dr. Gordon.

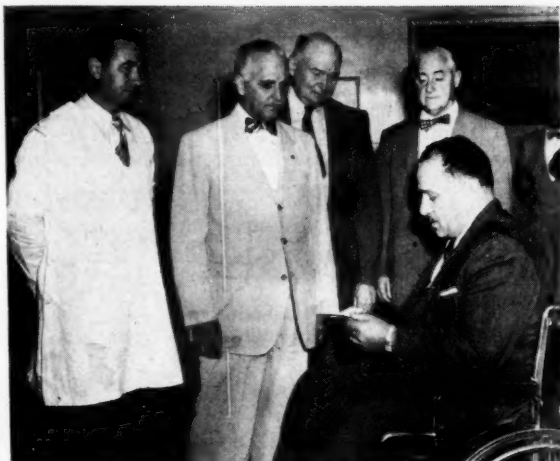
The major goal of the rehabilitation program is to establish self-sufficiency within the limits of the disability. According to Dr. Gordon, this may be brought about by several methods:

1. Strengthening muscles only partially affected in order to prevent atrophy and disuse.
2. Coordination and control exercises in training muscles in particular patterns of movement.
3. Calling upon substitute muscles to function in place of severely disabled muscles.
4. Using devices which compensate for disabilities to aid in performing the activities of daily living.

MICROCARD PUBLICATIONS

The publication of microcards in physical education, physiology of exercise, recreation and allied fields are now available through the Springfield Research Council, Springfield College, Springfield, Mass. Typical of many of the titles is this one:

P. E. 25 Bukh, Niels E., *Fundamental Gymnastics*: 1880 Translated from second Danish Edition, rearranged and adapted by Emily Andrews; published by E. P. Dutton Co., N. Y., 1938 202 pp 3 microcards, cost 95¢)



Dr. Arthur S. Abramson, Chief, Physical Medicine Rehabilitation Service, presents honorary membership in the Association for Physical and Mental Rehabilitation to Dr. Joel T. Boone, Chief Medical Director of the Veterans Administration, in the Corrective Therapy Section of the Kingsbridge VA Hospital.

From left to right: Mr. Leo Berner, President of the Association and Chief, Corrective Therapy; Dr. Joel T. Boone; Dr. Ralph G. DeVoe, Manager, Kingsbridge VA Hospital; Dr. Frances B. Carroll, Area Medical Director and Dr. Arthur S. Abramson.

MECHANICAL AIDS FOR THE BLINDED

Mechanical aids ranging from plastic kitchen gadgets to complex electronic devices were demonstrated before the Greater NY Council of Agencies for the Blind. A table full of aids including clinical and cooking thermometers with exposed faces and needles, a needle threader, a tape measure with raised hems, snap-on Braille labels for canned goods, graduated measuring cups, electric timers that ring a bell were among the many items shown. Equipment that measures the capacity of electrical circuits by auditory signals enables the blind to become paid radio technicians as well as enthusiastic members of the fraternity of "hams." A portable "electro-Braille communicator" for the deaf-blind was demonstrated. With it they can even "hear" those who have no knowledge of Braille or other touch systems of language.

PHYSICAL RECONDITIONING IN COMBAT ZONE

A new convalescent center is designed to provide physical reconditioning for casualties in the combat zone. At the army convalescent center (1,500 bed), as provided by the revised T/O&E 8-590, combat-experienced soldiers will be conditioned for return to front-line duty. This unit will be allocated on the basis of one per army corps.

The new unit will receive patients requiring less than three weeks of convalescent care. By remaining in the corps area, such casualties can be returned more expeditiously to their individual units. If

evacuated to the communications zone, they are delayed by fixed hospital procedures and by having to pass through the replacement system.

Individuals sent to the center will be those requiring a minimum of medical supervision; however, the clinical service of the center is equipped with 300 dispensary-type beds. Here, care is given patients who may suffer a slight recurrence of their former ailment or those who require surgery of a minor nature. The dispensary beds are used also for cases of minor illness or injury occurring in troops located in the immediate vicinity.

Patients suffering mild neuropsychiatric conditions receive special supervision by personnel trained in treatment of such conditions.

In addition to the clinical service, the convalescent center contains a headquarters and various sections to perform essential housekeeping and administrative functions. It contains, also, a reconditioning battalion which consists of a headquarters and six reconditioning companies. Each company is capable of caring for 200 patients.

T/O&E 8-950 formerly provided for the 3,000 bed convalescent hospital, allocated on the basis of one per army.

CONFERENCE ON COOPERATIVE RELATIONSHIPS ANNOUNCED

Dr. Louis B. Newman, Chief, P.M.R. Service, Hines V.A. Hospital, Hines, Ill., writes: "A conference on Cooperative Relationships in Hospital and Post-hospital Rehabilitation of disabled Veterans is to be held at the Veterans Administration Hospital, Hines, Illinois, on Friday November 2, 1951 from 9:00 a.m. to 4:00 p.m."

The objectives of this conference are: 1—To bring about an increased understanding, on the part of the hospital staff, of the available community resources; 2—To discuss and develop inter-agency activities and hospital planning in order that post-hospital adjustment and suitable employment of the veteran may be more effective; 3—To consider special problems of veterans requiring full, part time, sheltered, or home employment.

Outstanding speakers will take part in the panel and discussions. Physicians and all other professional personnel are invited. There will be no registration or other fee.

KESSLER INSTITUTE HOLDS SEMINAR

Kessler Institute for Rehabilitation, Pleasant Valley Way, West Orange, N. J. recently held a seminar on the causes and rehabilitation of congenital amputations. It was open to all pediatricians, obstetricians, gynecologists, orthopedic surgeons and technical personnel in rehabilitation and limb manufacturing.

The moderator of the seminar was Dr. Harold A.

Murray of Newark, N. J. Among the speakers were Dr. Douglas P. Murphy of Gynecological Hospital institute of gynecological research of the University of Pennsylvania, and Dr. L. C. Dunn of the Department of Zoology of Columbia University.

The seminar was held in conjunction with the semi-annual free clinic for amputee children. The afternoon program was devoted to the individual examination of children by Dr. Henry H. Kessler. Recommendations were made for their rehabilitation and parents were given specific instructions in the care of the amputee children in the home.

The April, 1951 issue of "Occupational Therapy and Rehabilitation" carried the third part of "Pop" Sanders article on "Mobilization of Paraplegics-Crutch Walking." "Pop" is chief C. T. at Kenndy VAMTG, Memphis, Tenn. As everything that "Pop" does, this is an excellent contribution to our field. Everyone should read it.

PROSTHETIC AND SENSORY AIDS REFERENCE EXHIBIT OPENED BY VETERANS ADMINISTRATION IN NEW YORK

A prosthetic and Sensory Aids Reference exhibit, the only one of its kind and scope in existence, has

been opened by the Veterans Administration at its New York City Regional Office, 252 Seventh Avenue.

The exhibit, four years in the making, includes a film, book and periodical library covering the field and prosthetics, and is operated by VA as part of its information and education program.

On display are the latest commercial and experimental developments in arm and leg prostheses, as well as braces, crutches, hearing aids, plastic and cosmetic restoration work, materials used in prosthesis construction, and an historical panel tracing the development of prosthesis through the ages.

Designed in modern style, the exhibit is open to the public Mondays through Fridays, 9 to 5, but is especially intended for the benefit of the medical profession, commercial firms, inventors, researchers, and students concerned with prosthetics and sensory aids.

The VA has announced that it will answer written requests for information on prosthetics as part of the exhibit's services. Letters should be addressed to Director, Prosthetic and Sensory Aids Service, Veterans Administration, 252 Seventh Avenue, New York 1, N. Y.

REMEMBER! *National Membership Drive of 1951* GET ONE!

FROM OTHER JOURNALS

(Con't. from Page 21)

Robert G. Harlow, "Masculine Inadequacy and Compensatory Development of Physique," *Journal of Personality*, 19:32-33, March, 1951.

In our culture children of both sexes tend to identify with the mother. Men who reject this introverted femininity often react by seeking strength and physical development, factors which clearly differentiate the male from the female. On the basis of Freudian theory it may be predicted that weight trainers will have more homosexual impulses, show more hostility to both sexes, be more narcissistic and display greater inadequacy than non-weight trainers. To test these hypotheses the Thematic Apperception Test and the Sentence Completion Test were administered to twenty weight men and to twenty non-weight training athletes. Evaluation of the scores confirmed the hypotheses. It is concluded that weight training answers a definite need and serves a specific function in the adjustment process of many individuals in our society.

P.J.R.

BOOK REVIEWS

(Con't. from Page 25)

The Science of Keeping Fit, The Times Publishing Co., Ltd., London, 1951. 48 pp. 1 shilling.

The articles in this booklet are reprints from a series contributed to *The Times Review of Industry* by an anonymous but highly literate and philosophical correspondent. The title, with its suggestion of "daily dozens" and vitamin pills, is unfortunate. To be sure, exercise and nutrition are discussed—but so are the healthful qualities of doing nothing, of ignoring time, of resisting regimentation, of the medieval attitude toward life, of forgetting. Whoever this correspondent may be, his writing displays the urbanity so often found in English prose. Those who believe in physical education as a way of life rather than a devotion to exercises and games will find his remarks both entertaining and provocative.

P.J.R.

The Forum

The editorial board is giving consideration to the inauguration of a new feature in the Journal. The Forum will provide the membership with an opportunity to submit technical questions, brief opinions, research problems and factual evidence that will help corrective therapists and rehabilitation workers everywhere, to do a professional job in the complex field of rehabilitation.

Here are some typical questions which the editor and editorial board believe will be of interest to the members. For example, what is your answer to this question? *How long should the so-called "warm-up" period be, prior to the giving of training in self-care activities, for a patient with a right hemiplegia resulting in a flail arm and leg, aphasia, agraphia, and alexia?* This illustrates a question of the technical type. Another typical question: *Why do some paraplegic patients who have become expert in crutch walking go home and remain satisfied with a wheel-chair existence?* We believe this is a matter of opinion. Do you?

It is generally accepted that more work needs to be done with middle and old age groups in the field of corrective therapy. Do you know of any research conducted recently that shows conclusively the relationship of exercise to age? *What are the effects of age on the exercise program?* This question is typical of many that need to be studied.

It is thought that questions of this type will not only be interesting to our readers but will also provide helpful suggestions in meeting some of their daily problems.

It is well to remind ourselves frequently that,

"What they have lost is in their past. Our job is to help build them a future with what they have left."

It is the plan of the editor and editorial board to secure an expert in the field of rehabilitation as a consultant and moderator for The Forum.

Your immediate reactions to the inauguration of a column known as THE FORUM will be appreciated.

THE EDITOR

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80 Avenue C,
Bayonne, N. J.
Bayonne 3-2881

Doctors Service Co.,
73 Lafayette Street,
Paterson 1, N. J.
Lambert 3-6603

Classified Directory

Cosmevo Surgical Supply Co., Inc.
236 River St.,
Hackensack, N. J.
Diamond 3-5555

Burlington Surgical Appliance
Service,
314 High Street,
Burlington, N. J.
Burlington 3-0052

NORTH CAROLINA

Wachtel's, Inc.
65 Haywood St.,
Asheville, N. C.
Tel. 3-7617

J. E. Hanger of N. C., Inc.
801 W. Morgan St.,
Raleigh, N. C.
Tel. 3-1811

Carolina Surgical Supply Co.,
121-123 S. Wilmington St.,
Raleigh, N. C.
Tel. 3-8631

Winchester Surgical Supply Co.
119 East Seventh St.,
Charlotte 1, N. C.
Tel. 2-4109

OHIO

Leicy's, Inc.
1531-33 West Market St.,
Steubenville, Ohio
Tel. 2-5393

Toledo Ambulance Service, Inc.
435 Melrose Ave. at Colling-
wood Blvd.,
Toledo 10, Ohio
Adams 4123

Columbus Chair Rental & Sales
235 North High Street
Columbus 15, Ohio
Tel. Main 2722

Alexander Surgical Co.,
137 East Gay St.,
Columbus, Ohio
Main 4860

OKLAHOMA

Raymond Furniture Co.
314 West Okmulgee Ave.,
Muskogee, Okla.
Tel. 3708

Oklahoma Physicians' Supply Co.
132 W. 3rd
Oklahoma City, Okla.
Tel. 3-3968

Mid-Continent Surgical Supply Co.
1330 South Boston,
Tulsa, Okla.
Tel. 2-8169

PENNSYLVANIA

Heyl Physicians Supply Co.
22 West Ninth St.,
Erie, Pa.
Tel. 2-6785

Harrisburg Surgical Co.
1008 North Third St.,
Harrisburg, Pa.

Allied Surgical Supply Co., Inc.
137 N. Duke St.,
Lancaster, Pa.
Tel. 3-4804

Lancaster Surgical Supply Co.
148 N. Duke St.,
Lancaster, Pa.
Tel. 2-3175

William Tolcke,
2262 N. 7th Street,
Philadelphia 33, Pa.
Fremont 7-3667

The Colson-Merriam Co.,
301 So. 11th St.,
Philadelphia 7, Pa.
Pennypacker 5-3363

Dowd Chair Rental & Sales,
138 So. Highland Ave.,
Pittsburgh 6, Pa.
Montrose 1-5355

The Robert A. Fulton Co.
120 Oakland Ave.,
Pittsburgh 13, Pa.
Mayflower 1-1200

SOUTH CAROLINA

Powers & Anderson of S. C.
1318 Taylor St.,
Columbia, S. C.
Tel. 4-1639

TENNESSEE

Kay Surgical, Inc.
1144 Madison Ave.,
Memphis 1, Tenn.
Tel. 7-7415

Mid-South Oxygen Co.,
651 Jefferson Ave.,
Memphis 3, Tenn.
Tel. 8-4228

TEXAS

Melton-Clark, Inc.
515 W. 6th St.,
Amarillo, Tex.
Tel. 3-6765

Surgical Selling Co.,
819 West Drew St.,
Houston, Tex.

Blackwell Mattress Co.
2610 Texas Ave.,
Lubbock, Tex.
Tel. 7962

Taylor Surgical Supplies
345 Sunset Court
Beaumont, Tex.
Tel. 4-8651

VIRGINIA

Wm. P. Swartz Jr. & Co., Inc.,
421 Luck Ave.,
Roanoke, Va.
Tel. 3-4483

DISTRICT OF COLUMBIA

The Colson-Merriam Co.
703 Transportation Bldg.,
Washington 6, D. C.
National 0011

WASHINGTON

Shipman Surgical Co.
313 University St.,
Seattle 1, Wash.
Main 6363

WISCONSIN

Gardie A. Lee
402 West Madison St.,
Eau Claire, Wis.
Tel. 7758

Roemer Drug Co.
606 No. Broadway,
Milwaukee 2, Wis.
MA. 8-0916

House of Bidwell, Inc.
604 North Water St.
Milwaukee 2, Wisconsin
Broadway 2-4368 — 2-1619

Capitol Orthopedics
520 South Park St.
Madison, Wisconsin
Madison 6-5303

STORES WHERE EVEREST AND JENNINGS PRODUCTS MAY BE RENTED

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Abbey Rents
609 S. Normandie Ave.,
Los Angeles, Calif.
DUnkirk 4-5292

Abbey Rents
1761 American Ave.
Long Beach, Calif.
L. B. 6-6264

Abbey Rents
2895 El Cajon Blvd.,
San Diego, Calif.
Talbot 1-8151

Abbey Rents
1314 Post Street
San Francisco, Calif.
GRaystone 4-2525

Abbey Rents
2315 Broadway
Oakland, Calif.
Higate 4-8181

COLORADO

Abbey Rents
350 Broadway
Denver, Colo.
PEarl 4651

MINNESOTA

Abbey Rents
310 S. Ninth Street
Minneapolis, Minn.
Lincoln 8931

MISSOURI

Abbey Rents
4041 Broadway
Kansas City, Mo.
Jefferson 5200

Abbey Rents
3432 Lindell Blvd.,
St. Louis, Mo.
NEwstead 1918

OREGON

Abbey Rents
1000 E. Burnside
Portland, Ore.
Filmore 5001

TEXAS

Best Rentals—4602 S. Main
Houston, Texas
KEystone 4416

WASHINGTON

Abbey Rents
1000 Pike Street
Seattle, Wash.
SEneca 5040

MANUFACTURERS OF QUALITY ARTIFICIAL ARMS AND LEGS

Standard Artificial Limb Co., Inc.
1902-04 Olive Street
St. Louis 3, Missouri
Tel. Central 1156

Oregon Artificial Limb Co.
221 S.W. Third Ave.,
Portland 4, Oregon
Tel. Beacon 7051

